MARKET OPPORTUNITIES FOR USER SITE HARDWARE SERVICES FROM REMOTE COMPUTING SERVICES COMPANIES

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Cunningham, P.
X
RCS
V.2
c.2
AUTHOR
Market Opportunities for User Site Hardware Services from Remote Computing Services Co's.
(3/80)
BORROWER'S NAME

UNITED STATES, West Coast
2471 East Bayshore Road
Suite 600
...ifornia 94303

..., East Coast
...st-1
...w Jersey 07662

...M
...h Floor)

...7-9 Merriwa Street
...don N.S.W. 2072

JAPAN
Overseas Data Service Company, Ltd.
Shugetsu Building, No. 12-7 Kita Aoyama
3-Chome Minato-Ku
Tokyo, 107
Japan
(03) 400-7090

000022

MARKET OPPORTUNITIES FOR USER SITE HARDWARE SERVICES FROM REMOTE COMPUTING SERVICES COMPANIES

VOLUME II

RESEARCH FINDINGS

A MULTICLIENT STUDY

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VOLUME II
RESEARCH FINDINGS

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1 INTRODUCTION

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I INTRODUCTION

- Volume II presents the research findings and is the main body of the USHS report.

  - Volume I, Custom Report, contains the Executive Summary including recommendations, and client-specific user issues.

- The objectives of this study of market opportunities for user site hardware services (USHS) remote computing services (RCS) companies were:

  - Determine the market for network-based information processors at customer sites provided by RCS companies.

  - Estimate current market penetration based on alternative marketing strategies including the approaches of:

    . Automatic Data Processing, Inc. (ADP).

    . National CSS, Inc. (NCSS).

    . General Electric Information Services Company (GEISCO).

  - Forecast markets through 1984.

  - Analyze product sales and buying processes.

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- Make recommendations for both market entry and expansion.

- Expanding earlier work presented in INPUT's report, "Opportunities in User Site Hardware Services," (MAS report Number 11), this report presents an analysis of both EDP managers' and end users' attitudes toward, and plans for using, RCS vendor-supplied USHS.

- During questionnaire development, each client was contacted to determine the issues germane to their company concerns. Client-specific issues are addressed in Volume I.

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II SCOPE AND METHODOLOGY

II SCOPE AND METHODOLOGY

A. SCOPE

- The research conducted in this report primarily addresses RCS vendor offerings, termed user site hardware services (USHS), which:

  - Place intelligent hardware (i.e., terminals, microcomputers, minicomputers) at the user's site or at the vendor's site dedicated to the user.

  - Offer significant RCS vendor-supplied software for execution on vendor-supplied intelligent hardware.

  - Offer user access to the RCS vendor's communications network.

  - Offer user access through the vendor's RCS networks to the vendor's mainframes or other intelligent hardware supplied to the user by the vendor.

- User site hardware services (USHS) are viewed as an alternative delivery method for remote computing services (RCS). As such, USHS both contracts and expands that marketplace by:

  - Replacing existing RCS vendor revenues.

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- Replacing in-house interactive timesharing on host mainframes.

- Being used for new applications.

- The study focuses on the current USHS approaches of three vendors and their products:

  - ADP Network Services, Inc. ONSITE system, characterized by:

    . Long-term leasing (five year).

    . DEC Megaminicomputers (2020).

    . Integration with ADP operating software.

    . Integration with ADP network for data communications, processing, and maintenance.

  - National CSS, NCSS 3200 series system, characterized by:

    . Purchase or third party lease payout.

    . Two Pi IBM plug compatible megaminicomputers.

    . Integration with NCSS operating software.

    . Optional integration with National CSS network for distributed processing, central processing, and maintenance.

  - GEIS Company MARKLINK distributed system, characterized by:

    . Purchase or lease on an unbundled basis.

    . Inexpensive TI microprocessor-driven intelligent terminals.

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- Integration with GEISCO operating software.

- Integration with the MARK III network for transaction processing and maintenance.

B. METHODOLOGY

The planned research for this study consisted of a set of questionnaires developed by INPUT in close coordination with participating clients, used for both telephone and on-site interviews with users and EDP managers.

- Interviews were conducted during the fourth quarter of 1979.

- The interview sample, distributed among three types of respondents from nearly 100 companies, is shown in Exhibit II-1.

  - End users (72).

  - EDP managers (59).

  - Financial executives (21).

- This sample was selected to determine differences among respondents in approach toward, and involvement in, the decision process for USHS.

- To obtain different user attitudes, the on-site interviews were divided among:

  - Thirteen planned or existing users of USHS from ADP, NCSS, or GEISCO.

  - Five users who had considered and rejected USHS.

  - Twenty-one organizations who were potential USHS users.

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EXHIBIT II-1

RECONCILIATION OF PLANNED VERSUS
ACTUAL INTERVIEW PROGRAM

INTERVIEW TYPE	RESPONDENTS	
	PLANNED	ACTUAL
COMPANIES INTERVIEWED	100	99
INDIVIDUAL INTERVIEWS		
END USER	70	72
EDP MANAGER	70	59
FINANCIAL EXECUTIVE	40	21
TOTAL INTERVIEWS	180	152
USHS PROSPECTS		
PLANNED OR ACTUAL		
USHS USERS	10	13
CONSIDERED AND REJECTED		
USHS	10	5
LIKELY PROSPECTS	20	21

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- Companies interviewed were classified by the following revenue categories:

Size	Annual Revenues
Large	More Than $1 Billion
Medium	$100M - $1 Billion
Small	Less Than $100 Million

- A representative user sample was selected from industry sectors that are the major users of RCS services.

- As shown in Exhibit II-1, the interview program, with the exception of financial officers, was completed as planned.

  - Financial officers in general were found to have little knowledge of the USHS decision-making process and were unable to respond to the questionnaire.

- Follow-up vendor interviews from the previous study (see Appendix C) were conducted for both marketing and field service personnel to determine actual experience and effectiveness of alternate sales strategies.

- Questionnaires were finalized on October 10, 1979.

- Interviews were conducted between October 14, and December 10, 1979. The interview program consisted of both on-site and telephone interviews with end users, EDP managers, and financial executives. A summary of the interview program is found in Appendix A.

- A midpoint review was held by telephone with each participant between November 5 and 13, 1979.

- Definitions of terms used throughout this report are in Appendix B.

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- Forecasts are based on current U.S. dollars and include an allowance of 6% for inflation. The difference between 6% and the annual increase in the Gross National Product (GNP) deflator is assumed to be offset by technology.

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III MARKET FORECAST

III MARKET FORECAST

A. MARKET FORECAST

- The USHS market is driven by cost.
  - Current users of USHS reported an average of 40% reduction in expenditures by converting from RCS to USHS.
- The other most important factors are:
  - Vendor software.
  - User's desire to do applications development at user site.
  - Availability of the network.
- Research was directed toward the utility processing services portion of the RCS market, where the USHS offerings of ADP, National CSS, and GEISCO are currently focused.
  - Utility services address two key segments of USHS:
    - DBMS services such as NOMAD.

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. General timesharing, which will be converted to USHS because of improved price/performance of USHS.

- RCS utility processing services revenues are more vulnerable to loss through conversion to in-house EDP, both mainframes and minicomputers. Using USHS to maintain current customers while expanding customer base is an important factor in vendor market strategy.

  - Utility services are an attractive market for USHS vendors, and offerings similar to ADP, NCSS, and GEISCO fit the market well.

- INPUT forecasts the market for USHS will rise to $1 billion in 1984, becoming 13% of the total projected RCS market.

  - Five year projections by service type are shown in Exhibit III-1.

  - INPUT first forecasted the 1983 USHS market in its report, "Opportunities in User Site Hardware Services," February 1979.

    . The revised forecast is within range of the previous forecast for 1983.

    . There were not as many early vendor entries in the USHS market as INPUT previously projected. However, the industry is expected to make up this ground rapidly. The net effect will not materially affect the longer term market.

- The utility processing services portion of the USHS market, the focus of this study, is forecasted to be $270 million in 1984, with a 68% AAGR over the five-year period.

  - This growth rate is unusually high because it is a new market starting from a very small base.

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EXHIBIT III-1

USER SITE HARDWARE SERVICES (USHS) MARKET IN THE U.S., 1980-1984

MODE	TYPE	$ MILLION/ PERCENT OF RCS	YEAR					AAGR 1980-1984 (PERCENT)
			1980	1981	1982	1983	1984	
USER SITE HARDWARE SERVICES	GENERAL BUSINESS	$ MILLION	–	$ 6	$ 20	$ 50	$ 80	140%
		PERCENT	–	1%	3%	5%	7%	
	SCIENTIFIC AND ENGINEERING	$ MILLION	–	4	15	30	50	119
		PERCENT	–	1	3	5	7	
	INDUSTRY SPECIALTY	$ MILLION	$ 100	170	285	470	660	46
		PERCENT	5	7	10	13	15	
	UTILITY	$ MILLION	20	50	110	200	270	68
		PERCENT	2	5	8	13	15	
	TOTAL	$ MILLION	$ 120	$ 230	$ 430	$ 750	$ 1,060	55%
		PERCENT	3%	5%	8%	11%	13%	

▨ UTILITY PROCESSING SERVICES; PORTION ANALYSED BY THIS STUDY

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- The forecast includes an allowance for revenues lost when RCS expenditures are converted to lower USHS expenditures. Reduced revenues are temporary because of rapid growth in services once USHS is available to more company users. INPUT expects that USHS vendors will recover the lost revenues within two years.

- INPUT projects 90% of the 1984 USHS market will be in the combination industry specialty and utility processing services.

  - Industry specialty services is the largest and most mature USHS market, with 1980 revenues expected to be $100 million.

    . This market is characterized by specialized vendor-supplied software.

  - Utility processing services is a new market for USHS vendors, with 1980 revenues expected to be $20 million. Key segments of this market include:

    . Data base management services.

    . Traditional in-house timesharing conversion to USHS.

    . Distributed data processing.

- The methodology used for the market forecast was as follows:

  - A detailed model was established for the utility processing services portion of the RCS market based on current USHS vendor-installed base and USHS revenues in 1979.

    . It was assumed that purchases were annualized on an equivalent lease basis.

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  - Revenue from installed base was projected ahead year by year.

  - A 15% per year allowance for loss of a number of installations through lease terminations was included.

  - A 25% per year allowance for increased services for each installation retained in the revenue base was included.

  - Best judgement estimates were made as to the growth in the number of installations per year from 1980 through 1984.

- Best judgement estimates were made for the degree of USHS penetration, expressed as a percentage of total industry RCS projected revenues, to determine USHS market projections for:

  - General business.

  - Scientific and engineering.

  - Industry specialty.

- The projected RCS revenues used for this forecast are contained in Appendix E.

B. INFLUENCING FACTORS

1. VENDOR ACTIVITY

- The USHS market is new and expanding. The rate of market expansion will be directly related to vendor product development and marketing efforts.

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- Pressured by potential loss of utility services business to in-house timesharing systems, and cost/effectiveness USHS products offered by computer services competitors, INPUT expected most major RCS vendors to have announced USHS products by late 1979.

  - RCS vendors have delayed entry into the utility market to assess the impact of IBM's 8100 and 4300 series announcements.

  - The three major RCS vendors now actively selling into this market are ADP, NCSS, and GEISCO. It is INPUT's judgement, based on research results, that their efforts are proving successful.

  - Other major RCS vendors maintain an active interest in USHS. New USHS product offerings are expected in 1980.

- INPUT expects IBM will offer communications services and network management, which, together with IBM computers and software, will compete with USHS vendors.

  - IBM Canada has announced "BASE," a service for security brokers using the IBM Series 8100 to handle local files, connected to an IBM data center host for access to financial data bases.

  - EDP managers reported the number of IBM 8100/4300s they have on order to be as follows:

    . An average of three IBM 4300s with a range of 0 to 20.

    . An average of eight IBM 8100s with a range of 0 to 250.

    . Thirty percent of the ordered computers are for new requirements rather than for replacement of existing systems.

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- EDP managers' attitudes are mixed with respect to the purchase of other manufacturers' systems which are comparable to the IBM Series 4300. Forty-six percent stated they would consider purchase of comparable equipment.

  - Not surprisingly, the major reasons cited were delivery schedule and price.

2. APPLICATIONS DEVELOPMENT BACKLOG

- A major factor driving the USHS market is the desire of end users to do applications development at the user site.

  - Clearly, end users feel that there is a lack of EDP department capacity to develop applications.

  - EDP managers report that the applications development backlog is averaging 20 months and becoming longer. Seventy-eight percent are feeling high and increasing pressure from end users to improve the situation.

- Eighty-seven percent of EDP manager respondents are actively looking for design and programming tools and methods to assist in applications development.

  - Providing for applications development at the user site is an attractive way to help solve the problem.

  - Active consideration is also being given to buying applications software products to meet some of the users' needs.

- INPUT expects that the capability of end user departments to develop applications at the user site will increase rapidly.

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- Based on research results, EDP managers will support providing this capability to end users. By 1984, about one-quarter of all applications development will be done by end users.

  . A consequence of this will be to lower materially the development backlog.

C. SUMMARY CONCLUSIONS

- USHS in the utility processing services portion of the RCS market is an alternate method of delivery of services as contrasted to development of a new market area.

- In the industry specialty market, USHS has the potential to open up new markets. For USHS to result in major RCS market expansion will require considerable investment by service vendors.

- As previously reported by INPUT in the report, "Opportunities in User Site Hardware Services," there are advantages offered by a USHS strategy that are significant and include:

  - A means of participating in the DDP market.

  - A potential method of capturing a portion of the in-house timesharing market.

  - Developing an integrated network and software service package for the post-1980 timeframe.

  - Providing entry into the small user area; i.e., less than $2,000 per month in billings.

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- As the market develops, the lines of distinction between traditional hardware, software, and services vendors, will continue to be blurred. RCS vendors will be well advised to alter their existing market strategies accordingly.

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IV USER ANALYSIS

IV USER ANALYSIS

A. EXISTING USERS

1. INTERVIEW SAMPLE

- An important part of the interview program concentrated on existing users of USHS systems. The number of existing USHS users is small at present, but is representative of the future USHS market.

- Interviews were conducted with 13 of the ADP and NCSS users, as shown in Exhibit IV-1. Small, medium, and large organizations in five industry sectors are included.

  . Although this sample of 13 companies is small in number, it represents nearly one-quarter of the 1979 installed base of USHS. Conclusions drawn from the research in this area are of major importance to the conclusions of this report.

- GEISCO is in the process of installing its first major USHS system and a special interview was conducted with the user. This is a very large system with 800 terminals throughout the United States, and is different from the ADP and NCSS USHS systems. It is discussed later in this section.

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EXHIBIT IV-1

EXISTING USERS OF USHS –
INTERVIEW SAMPLE

SAMPLED COMPANIES BY SIZE OF SALES OR REVENUES			
SMALL < $100 MILLION (NUMBER)	MEDIUM $100-999 MILLION (NUMBER)	LARGE ⩾ $1 BILLION (NUMBER)	TOTAL (NUMBER)
3	9	1	13

SAMPLED COMPANIES BY INDUSTRY SECTOR					
BANKING AND FINANCE (NUMBER)	DISCRETE MANUFAC-TURING (NUMBER)	PROCESS MANUFAC-TURING (NUMBER)	SERVICES (NUMBER)	RETAIL (NUMBER)	TOTAL (NUMBER)
2	3	1	6	1	13

NUMBER OF RESPONDENTS = 13

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2. PRESENT INSTALLATIONS

- INPUT estimates that there were 55 USHS installations at the end of 1979, about equally divided between ADP and NCSS.

  - The 13 respondent interview program represents 24% of the estimated USHS installed base.

- Reducing existing RCS expenditures and improved system access are prime reasons for RCS users converting to USHS.

  - Ten of the existing users were previous RCS customers of the USHS vendors.

- Monthly expenditures for USHS varied from $7,000 per month to $42,000 per month in 1979. Average expenditures for the group were $17,500 per month.

- Two-thirds of the existing users interviewed do not project RCS expenditures beyond one year.

  - Their plans can be materially affected by marketing efforts of USHS vendors.

- Price is the most important motivating factor for conversion of RCS to USHS. Existing users were generally satisfied, even enthusiastic, in this regard.

  - The average level of cost savings through converting RCS to USHS experienced by existing users was 40%.

  - Reported cost savings ranged as high as 60%. Selected comments of respondents concerning price/performance are shown in Exhibit IV-2.

  - The NCSS 3200 USHS is offered for purchase rather than lease.

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EXHIBIT IV-2

SELECTED COMMENTS OF EXISTING USERS' EDP MANAGERS CONCERNING USHS PRICE PERFORMANCE

- "We received a 60% improvement going on-site as compared to using network services."
- "We were spending $40,000 per month on a normal timesharing basis; now spend $20,000 per month for the on-site."
- "Overall, a 50% cost reduction."
- "Were paying $12,500 per month for RCS, when we went to the on-site, we paid $7,000 per month and could do 60% more."
- "We are very pleased with the price performance of USHS, about 60% improvement on the application we moved off the network services."

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- In one case, the system, including rights to the software, was purchased for $230,000.

  . The only remaining monthly expense was $1,900 for maintenance.

  . There was no conversion cost.

  . Previous monthly expense for RCS was $20,000.

  . The break even period was 13 months.

- There are other reasons for satisfaction among the USHS users:

  - The system is totally transparent to the user. When they switched to the USHS from RCS, users were hardly aware of the conversion.

  - Users regard vendors' computers and networks backing up their user site hardware as a real plus. The network is used for remote maintenance and for obtaining additional computer capacity.

3. REASONS FOR BUYING

- Existing end users feel that processing costs of RCS are both too high and cannot be accurately projected for budget and control purposes. The four most important features of USHS, as rated by existing end users, are shown in Exhibit IV-3.

  - End users' responses are consistent with those of EDP managers. Cost was clearly the most important reason for converting to USHS.

  - Network capability to support multiple remote points and the ability to do applications development at user site were also very important to end users.

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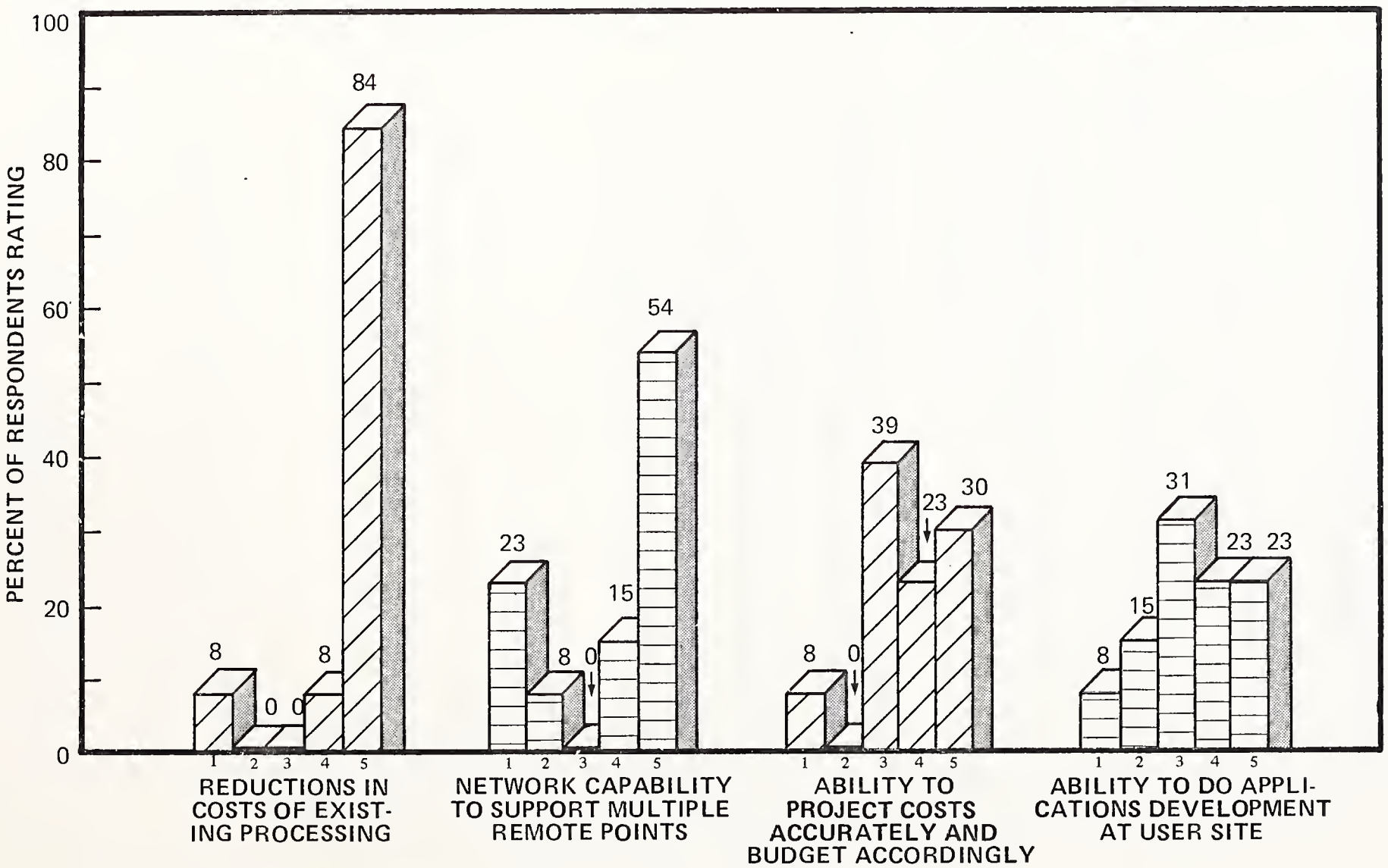
EXHIBIT IV-3

FOUR MOST IMPORTANT FEATURES OF USHS
AS REPORTED BY EXISTING END USERS



NUMBER OF RESPONDENTS = 13 (100%)

NOTE: RATED ON A SCALE WHERE 1 = LEAST IMPORTANT AND 5 = MOST IMPORTANT

- Existing users showed an interest in, but did not rate highly:

  . Consolidation of outside timesharing.

  . Purchase of packaged software from third parties.

- Existing users noted as unimportant:

  . Interfacing with other vendors from the terminal.

  . Interfacing with the in-house system through the RCS vendor's network.

- The importance of size and type of programs to be run and system response requirements were examined in the study.

  - Respondents regarded the system response as very important, but the size and type of programs as unimportant, when considering conversion to USHS. Results are shown in Exhibit IV-4.

- Existing USHS users in the interview sample also rated the reasons for buying USHS. Results are shown in Exhibit IV-5.

  - Again, cost and EDP department inability to support end users were rated highly. In addition, vendor-supplied proprietary software is clearly important.

- Considering the views of present USHS users, USHS systems should be marketed to end users based on the following factors:

  - Reduced costs of existing remote computing services.

  - Inability to provide equivalent services internally.

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EXHIBIT IV-4

IMPORTANCE OF SIZE AND TYPE OF PROGRAMS
TO BE RUN AND RESPONSE REQUIREMENTS

REQUIREMENT	IMPORTANCE		
	HIGH	MEDIUM	LOW
SIZE OF PROGRAMS	1	4	8
TYPE OF PROGRAMS	3	3	7
RESPONSE REQUIREMENTS	7	3	3

NUMBER OF RESPONDENTS = 13 (100%)

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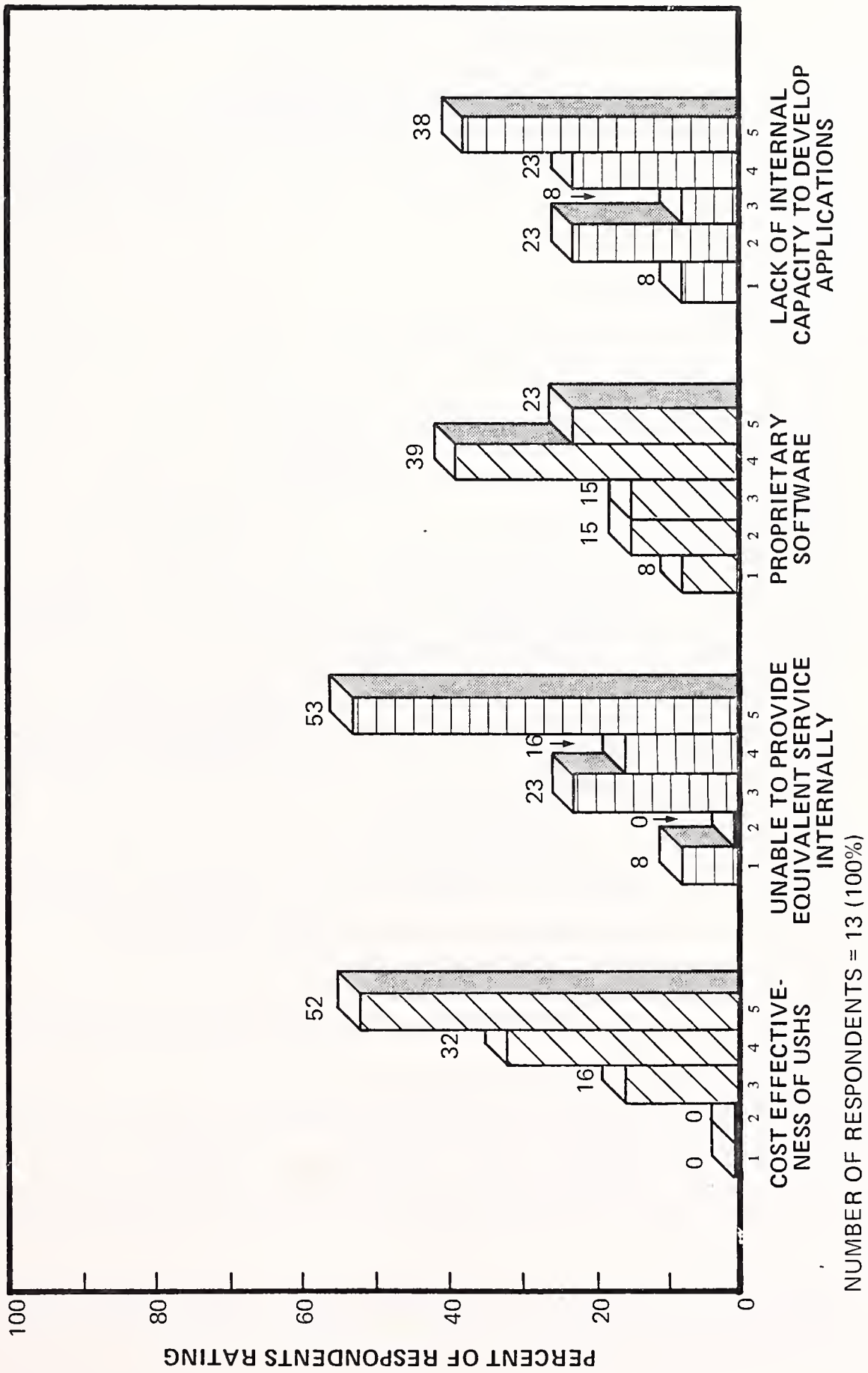
EXHIBIT IV-5

FOUR MOST IMPORTANT REASONS FOR BUYING USHS
AS REPORTED BY EXISTING USERS



NUMBER OF RESPONDENTS = 13 (100%)

NOTE: RATED ON A SCALE WHERE 1 = LEAST IMPORTANT AND 5 = MOST IMPORTANT

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- Applications development at user site.

- Network capability.

- Proprietary software.

- As will be shown in Section V, "Role Of The EDP Manager," RCS vendors must also sell USHS to EDP managers. EDP managers stress additional factors, such as:

  - Reliability and backup.

  - Maintenance and support.

4. USES FOR USHS

- Vendors are supplying support to USHS users for consulting, applications development, and application conversions.

  - The average support level per installation was, as reported by end users, nine man months.

    . Vendors were able to bill separately over one-half of total support effort. The remainder is absorbed.

    . Any applications development effort was nearly always billed.

- Present USHS systems are primarily used for timesharing/problem solving, transaction processing, and applications development. Distribution of principle uses of USHS, as reported by end users, is shown in Exhibit IV-6.

- Applications identified by existing USHS users were not concentrated in specific business areas.

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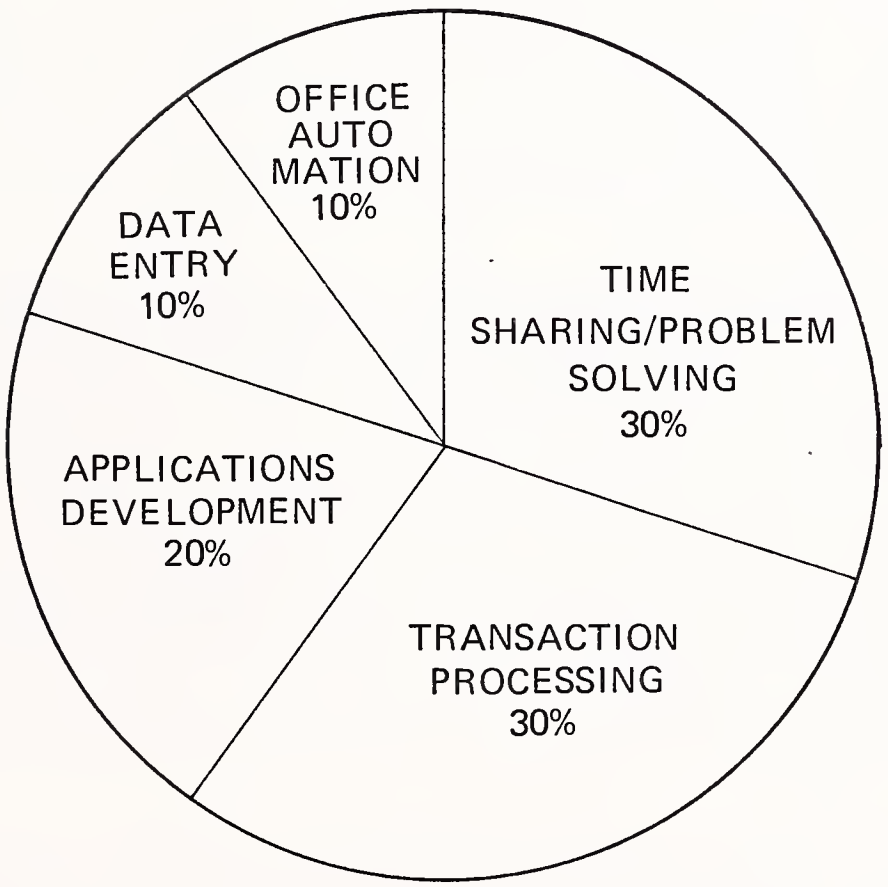
EXHIBIT IV-6

PRINCIPLE USES OF USHS
AS REPORTED BY END USERS



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- Twelve respondents listed a total of 52 applications that generally fell in the following areas:

  . Financial analysis.

  . Administration.

  . Inventory control.

  . Corporate planning and development.

- One of the most attractive features of USHS is the ability to accomplish applications development at the user's site, avoiding delays created by applications development backlog in the EDP department.

  - Present USHS users are taking advantage of this feature. Over one-half of the end user respondents reported that they were using USHS for applications development, either alone or in conjunction with the EDP manager.

  - All respondents reported that applications software is being developed and retained locally.

5. ADP AND NCSS

- The 13 existing users interviewed were either ADP or NCSS customers.

  - Two of the 13 users had on-site installations at the ADP data center, connected to the user site through the network with a data rate of 9600 bps.

  - None of the users interviewed had more than one USHS installed at this time, but several are considering multiple installations in the next three years.

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- Although USHS systems are new and further experience with them is needed by both end users and EDP managers, future multiple installations, network connected, are an important consideration among existing users.

- Only two of the 13 existing users interviewed had linked their USHS system with in-house systems or with other organizations.

  - Two others plan to do so in the future.

  - INPUT believes that USHS compatibility with in-house mainframes is important to both end users and EDP managers.

- The present users interviewed can be categorized as follows:

  - An end user linking the USHS system with an EDP department mainframe of a medium to large organization.

  - An end user of an organization where the user views the USHS system as completely separate for his own department, network connected. An example of this is a user in the interview sample that regards the USHS system strictly as the timesharing system for the corporate offices. They have no interest in interfacing elsewhere in the company.

  - Small to medium organizations where the USHS system is the in-house system. Here the question of interfacing with in-house systems does not apply; serving other parts of the organization is the priority. One example of such a user is a company in the retail industry where the USHS system is the in-house system but is linked to 100 stores.

6. GEISCO

- GEISCO is in the process of completing its first major USHS system installation. It is an inventory/ordering system using MARKLINK terminals and

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the MARK III network. The system is very different in nature from the ADP and NCSS offerings. It provides intelligent terminals at approximately one-tenth the cost of the ONSITE or 3200 computers, and makes extensive use of the GEISCO network.

- When finished, by the end of 1980, it will serve 175 locations in the U.S., using 800 CRT terminals.

- Users have simultaneous access to the data base, which contains information on 85,000 items.

- Transaction processing is used and response time is about five seconds.

- For further discussion of the GEISCO system, see Section VIII, "Current Product Offerings."

B. PROSPECTIVE USERS

- Fifty-four prospective users of USHS were interviewed. The interview sample is shown in Exhibit IV-7.

  - Of these, 21 are regarded as "most likely prospective users."

  - Twelve are current RCS customers of NCSS or ADP.

  - Twenty-two are bank trust departments.

- Moving applications development to the end user is a very attractive use of USHS. It gets the user applications development out of the central EDP queue, gives the user faster access to the computer and more control over system development. Sixty-six percent of prospective end users were interested in using USHS at their site for applications development.

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EXHIBIT IV-7

PROSPECTIVE USERS OF USHS

SAMPLED COMPANIES BY SIZE OF SALES OR REVENUES			
SMALL < $100 MILLION (NUMBER)	MEDIUM $100-999 MILLION (NUMBER)	LARGE ⩾ $1 BILLION (NUMBER)	TOTAL (NUMBER)
7	35	12	54

SAMPLED COMPANIES BY INDUSTRY SECTOR						
BANKING AND FINANCE (NUMBER)	DISCRETE MANUFAC-TURING (NUMBER)	PROCESS MANUFAC-TURING (NUMBER)	UTILITIES (NUMBER)	INSURANCE (NUMBER)	OTHER (NUMBER)	TOTAL (NUMBER)
25	6	9	5	4	5	54

NUMBER OF RESPONDENTS = 54 (100%)

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- It is important that end users of USHS be able to interface with the in-house mainframe.

  - Sixty-one percent reported that compatibility was essential.

  - End users and EDP managers work together closely and must have interchange of information.

  - Incompatibility between the ADP ONSITE and the in-house EDP system was reported as a problem by existing ADP users.

  - Typical comments by respondents were:

    . "Would be essential to get information directly from the in-house system."

    . "Ability to correlate data bases would be useful."

    . "Need to draw on past records."

    . "Must transfer and receive order entry data."

- One of the premises to be examined in this study was the importance of using USHS to offload host computers.

  - INPUT concludes that although USHS end users and EDP managers regard it as being important, offloading the host is not one of the major reasons for buying USHS.

- When asked separately, sixty-nine percent of user respondents regarded using USHS to offload the host computer as being important.

  - However, when the same respondents were asked to rate the importance of using USHS to offload the host, it was rated well below cost,

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applications development at user site, proprietary software, and networking as reasons for buying USHS.

- It is important to end users and EDP managers to be able to update master files on-line and in real time.

  - Two-thirds of prospective end users rated this capability as being important or very important.

  - This capability is especially important to bank trust departments.

- This study sought to estimate the number of potential installations of USHS in each company, and to identify which departments or functional areas are potential USHS users.

  - The average number of potential USHS installations reported by 32 EDP manager respondents was 9; ranging up to 50.

    . This excludes three respondents who identified much larger numbers of USHS installations, ranging up to 400, which, if included, would raise the average number to 23 installations per organization.

      - The three large potential installations were in financial, process manufacturing, and state government.

  - These estimates indicate a large USHS market with multiple installations and bodes well for USHS vendors' entry into DDP.

- Given a USHS with networking capability, users will convert other timesharing expenditures to USHS.

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- End users reported that such services would be up to $30,000 per month for in-house timesharing and up to $50,000 per month from RCS vendors.

- The departments or functional areas that were mentioned as potential USHS users, listed in order of mentions, are shown in Exhibit IV-8.

C. USERS WHO CONSIDERED BUT REJECTED USHS

- INPUT interviewed five end users who had seriously considered contracting for ADP or NCSS user site hardware services but decided to reject it.

- The five respondents' answers to general questions, such as the sales and buying process, attractiveness of USHS, etc., are not distinguishable from those of the larger sample of prospective users.

- A brief description of the five companies and their reasons for rejecting USHS follows:

  - A $1.5 billion company in the discrete manufacturing field.

    . Total timesharing budget of $650,000 per year ($250,000 for outside timesharing) divided among 30 user departments.

    . Users had total choice of whether to use in-house or remote timesharing vendors.

    . No single user could justify USHS, so they got together.

    . They considered the NCSS 3200 to offload the in-house mainframe and were particularly attracted to the 3200 because of software.

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EXHIBIT IV-8

DEPARTMENTS OR FUNCTIONAL AREAS
AS POTENTIAL USHS USERS

FUNCTIONAL AREAS	NUMBER OF MENTIONS
ENGINEERING	8
FINANCIAL	8
MARKETING	6
ACCOUNTING	5
TRUST	4
MANUFACTURING	4
PERSONNEL	3
SALES	2

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  - The users' final decision, in concert with the EDP manager, was to upgrade the in-house system instead of acquiring the NCSS 3200.

  - The basic reason cited was cost.

- A medium size company in the discrete manufacturing field.

  - RCS expenditures: $95,000 per year.

  - A current ADP customer.

  - EDP controls the procurement.

  - User departments were very much for the ADP ONSITE to meet new applications requirements that had not been brought up on the in-house computer.

  - The EDP department was concerned about the ONSITE compatibility with their in-house IBM computer. The department also felt that ADP had not marketed their product to them very well.

  - The company decided to upgrade their in-house system instead of using the ADP ONSITE system.

  - Internal organizational reasons were cited for rejecting USHS.

- A $1.6 billion company in the utility industry.

  - RCS expenditures: $500,000 per year.

  - EDP controls the procurement.

  - A present NCSS customer using NOMAD.

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  - The timesharing manager seriously considered the NCSS 3200.

  - The price was highly attractive and the payback situation was considered excellent.

  - Corporate management decided against it.

  - Though the EDP department and the financial departments thought the NCSS 3200 was a great short-term solution to their timesharing needs, top management looked more to the long-term. The company was willing to pay the cost for conversion to in-house EDP now and avoid the headaches of trying to share information among data base management systems later.

  - Reasons cited were internal organization considerations.

- A $1.2 billion company in the transportation industry.

  - RCS expenditures: $36,000 per year.

  - EDP controls the procurement.

  - Users were attracted to the NCSS 3200 for additional applications needs not being met in-house.

  - The USHS was rejected for cost reasons with the following comment: "It was cheaper to use excess capacity of the EDP department, but otherwise it was the way to go."

- A commercial bank with assets of $165 million.

  - RCS expenditures considered confidential.

  - End user controls the procurement.

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  - . Management did not consider any specific vendors, but rejected the concept of USHS.

  - . Reasons cited were internal organizational considerations and problems concerned with change-over.

- Users rejected USHS because in-house centralized timesharing was considered a lower cost alternative.

- EDP managers were vital to the decision and should be a major target for future USHS marketing efforts.

- Compatibility problems were also an important consideration.

  - Users and EDP managers want to tie the USHS to the in-house mainframe.

  - Concern was expressed about the problems of sharing information among data base management systems.

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V ROLE OF THE EDP MANAGER

V ROLE OF THE EDP MANAGER

A. USER COMPUTER EQUIPMENT AND SERVICES

- The EDP department plays an important role in the procurement of computer equipment and services by end users. Their responsibilities include:

  - Providing technical support and review to end users.

  - Selecting the computer service vendor.

  - Controlling and recommending approval of the procurement.

- These responsibilities were identified by EDP managers, but were also comfirmed by both end users and financial managers.

- Although retaining control, EDP managers are working closely with end users in the procurement of computer equipment. INPUT believes that end users will exercise more autonomy as they become more sophisticated in EDP.

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B. ALTERNATE EDP DELIVERY METHODS

- The EDP managers' perceptions of risk for alternate approaches for new or augmented EDP capability are shown in Exhibit V-1.

  - Not surprisingly, EDP managers regard those approaches for obtaining increased EDP capability which are not under EDP control as high risk.

  - Decentralized EDP in user departments, and development and operation of systems with end users by a services vendor, are both regarded by EDP managers as high risk approaches.

  - EDP managers fear decentralizing EDP in user departments because of their general lack of EDP knowledge. It is regarded by EDP managers as a desirable approach, but the level of risk very much depends on the sophistication of the user.

  - In the case of development by a services vendor, the issue is one of lack of EDP department control.

C. USER INDEPENDENCE

- A basic question in devising marketing strategies for USHS concerns whether end users are separating themselves from central EDP and becoming more autonomous.

  - Two-thirds of EDP managers felt that this was not the case now.

  - Projecting into the 1980s, half of those responding felt that end users would be separating themselves.

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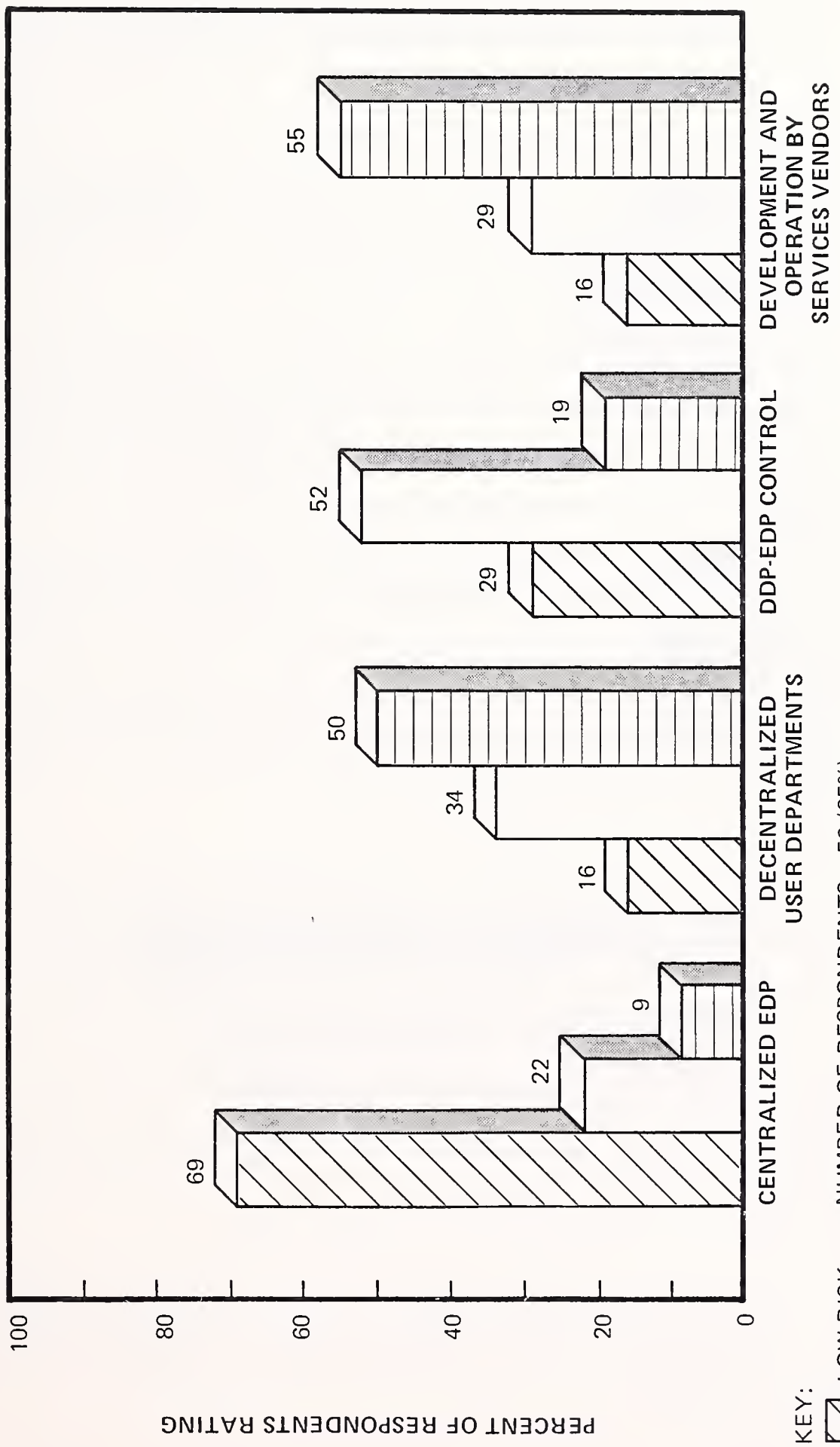
EXHIBIT V-1

LEVEL OF RISK –
NEW OR AUGMENTED EDP CAPABILITY AS REPORTED BY EDP MANAGERS



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- INPUT believes that the trend will be for the end users to separate themselves more from the EDP department as applications development at the user's site and user's participation in DDP become more prevalent.

  - However, marketing strategies for USHS should continue to include the data processing manager.

- The proportion of small (less than $100K) and medium size ($100K to $500K) EDP systems that will be bought directly by end user departments, as reported by EDP managers, are shown in Exhibit V-2.

  - There is a clear indication (70-80% of respondents) that the portion of EDP systems procured directly by end users will be less than 30%. The mean for medium size systems was 16%; for small size systems, 23%.

  - The timeframes 1979-1981, and 1982-1985, were examined, but there was no significant difference in the results for the two periods.

- As shown in Exhibit V-3, opinions of EDP managers were more divided as to the portion of purchase recommendations for small and medium EDP systems that will be made by user departments.

  - Even though end users will have restricted ability to procure EDP systems directly, EDP managers expect a greater portion of end users will make the purchase recommendations for small and medium size systems.

- Based on the results of this study, INPUT believes that the trend is clear: end users will become increasingly more involved in procurement, development, and operation of EDP systems at the user site.

  - The evolving cooperative effort between end users and the EDP department reduces marketing effort, making the USHS market more attractive.

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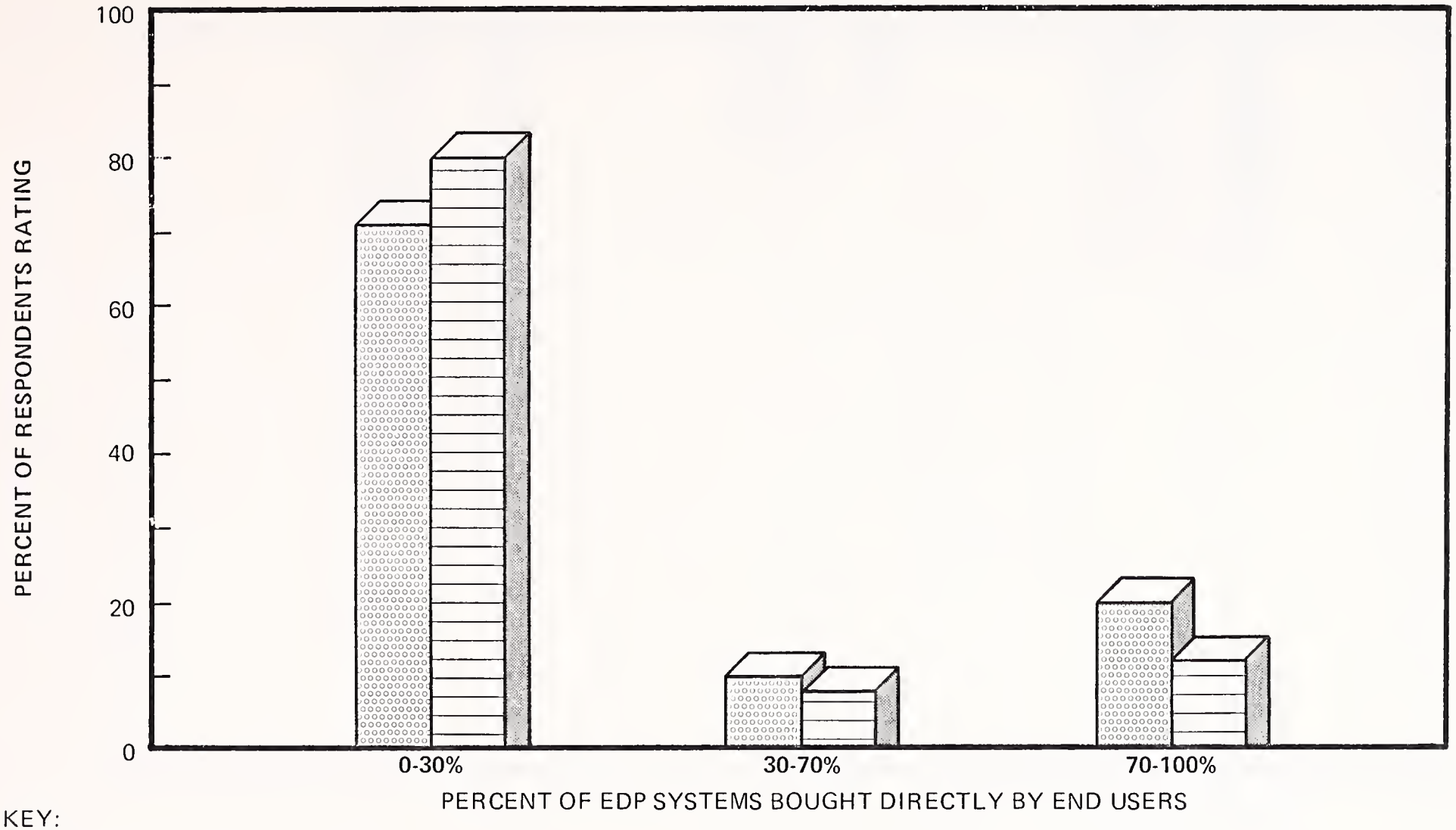
EXHIBIT V-2

EDP SMALL AND MEDIUM SYSTEMS

BOUGHT DIRECTLY BY USER DEPARTMENTS AS REPORTED BY EDP MANAGERS



KEY:

SMALL SYSTEMS (< $100K)

MEDIUM SYSTEMS ($100K-$500K)

NUMBER OF RESPONDENTS = 54 (92%)

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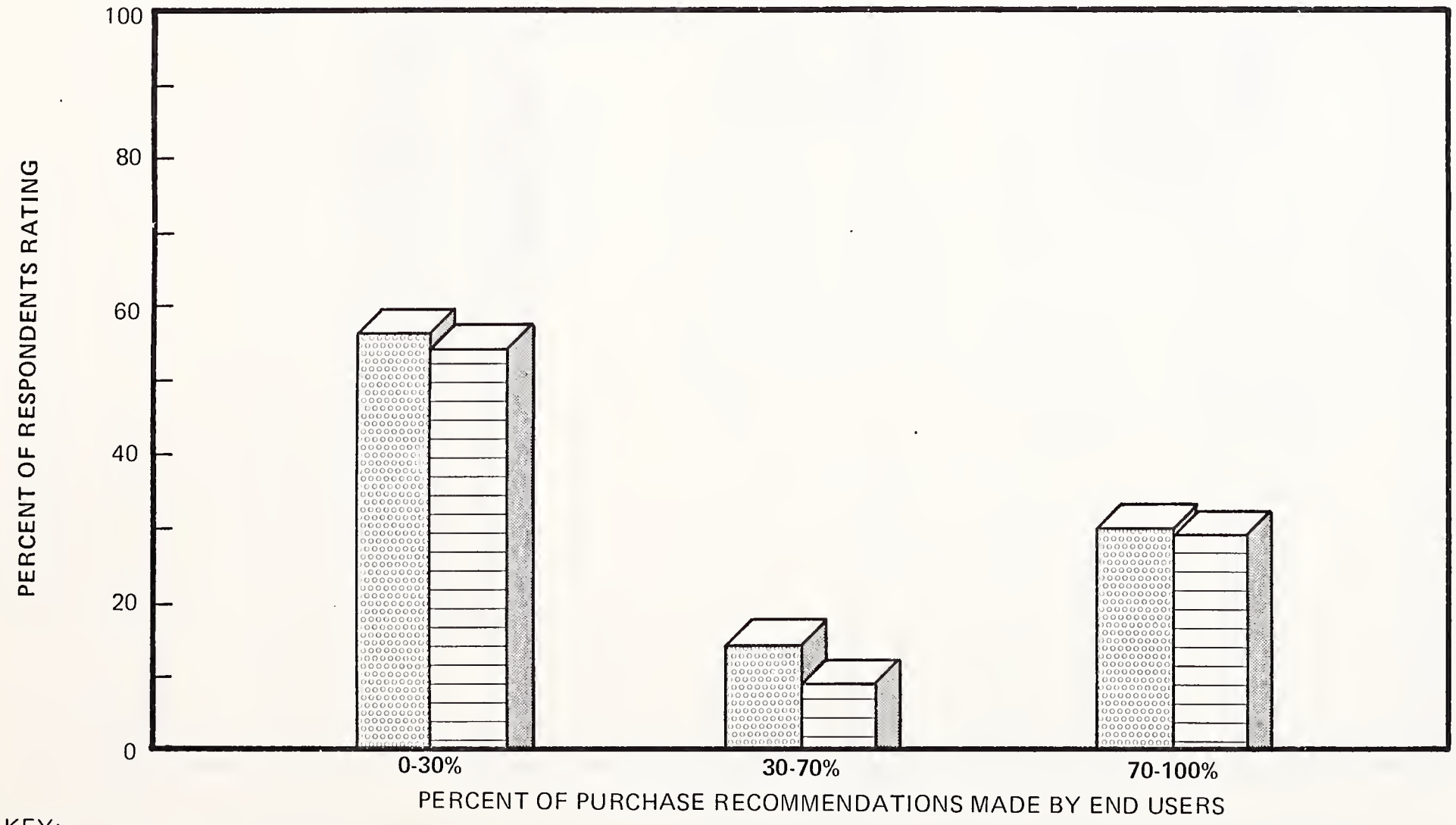
EXHIBIT V-3

PURCHASE RECOMMENDATIONS FOR EDP SMALL AND
MEDIUM SYSTEMS MADE BY USER DEPARTMENTS AS REPORTED BY EDP MANAGERS



KEY:

SMALL SYSTEMS (<$100K)

MEDIUM SYSTEMS ($100K-$500K)

NUMBER OF RESPONDENTS = 50 (85%)

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D. REMOTE LOCATIONS

- EDP services will be increasingly delivered to remote locations by means of locally installed processors. EDP services for remote locations by type of service, as reported by EDP managers, are shown in Exhibit V-4.

  - The number of intelligent terminals and distributed processors in networks will nearly double in the next five years, providing over 50% of all EDP services to remote locations, the USHS potential market.

  - Correspondingly, the use of batch processing and dumb terminals for remote users will be reduced by about 35%.

  - Only 3% of EDP services to remote locations will be provided by decentralized standalone processors.

- EDP managers report timesharing is being delivered to remote locations in about equal proportions by:

  - In-house timesharing.

  - Remote computing service vendors.

  - Combinations of both delivery methods.

- RCS vendors can expect to provide a larger share of these services as a portion of in-house timesharing is converted to USHS.

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EXHIBIT V-4

HOW EDP SERVICES WILL BE PROVIDED TO REMOTE LOCATIONS AS REPORTED BY EDP MANAGERS

TYPE OF SERVICE	YEAR	
	1980 (PERCENT)	1985 (PERCENT)
BATCH	39%	22%
DUMB TERMINALS	27	21
INTELLIGENT TERMINALS	14	25
DISTRIBUTED PROCESSORS IN NETWORK	15	28
DECENTRALIZED STANDALONE PROCESSORS	3	3
DON'T KNOW	2%	1%

NUMBER OF RESPONDENTS = 52 (88%)

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E. USHS ATTRACTIVENESS TO EDP MANAGERS

- There are key issues concerning USHS that EDP managers see as disadvantages. These should be addressed by USHS vendors in their marketing efforts.

  - The largest issue is loss of control. This is meant in the sense of control over rate of growth of user installations, compatibility with the central installation, compatible DBMS, ability to make changes and technical control of remote processors tied to a network.

  - The economics of USHS are of concern to EDP managers, who generally feel that in-house systems are more economical, particularly the IBM 4300. End users lack sophistication in EDP. EDP managers must work closely with them to achieve cost/effective use of USHS.

  - Training of personnel in end user departments is another area of concern, as well as retention of trained personnel.

  - The ability of USHS vendors to maintain remotely placed equipment nationwide (not yet demonstrated) is a major concern of EDP managers.

- Typical comments by EDP mangers about USHS perceived disadvantages are shown in Exhibit V-5.

- EDP managers' attitudes were not very positive in rating the attractiveness of using USHS for the selected functions shown in Exhibit V-6.

  - The less than enthusiastic ratings may be attributed, in part, to the manner in which USHS will impact EDP department management control.

  - It can also be attributed to a general lack of knowledge about USHS offerings among EDP managers.

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EXHIBIT V-5

TYPICAL COMMENTS BY EDP MANAGERS ABOUT USHS

- "USHS would lose control resulting in an explosion in the use of computers instead of controlled growth."
- "Duplicates a lot of effort over what is offered now by the internal EDP Department."
- "EDP Department must control installations to maintain company uniformity."
- "Economics will be better using in-house system, particularly with the IBM-4300s."
- "Lack of continuity, difficult for end user department to attract and keep qualified personnel."
- "For this installation it must be totally compatible with the IBM mainframe."
- "Security of the data will be difficult to maintain."
- "How flexible will the vendor be in making changes?"

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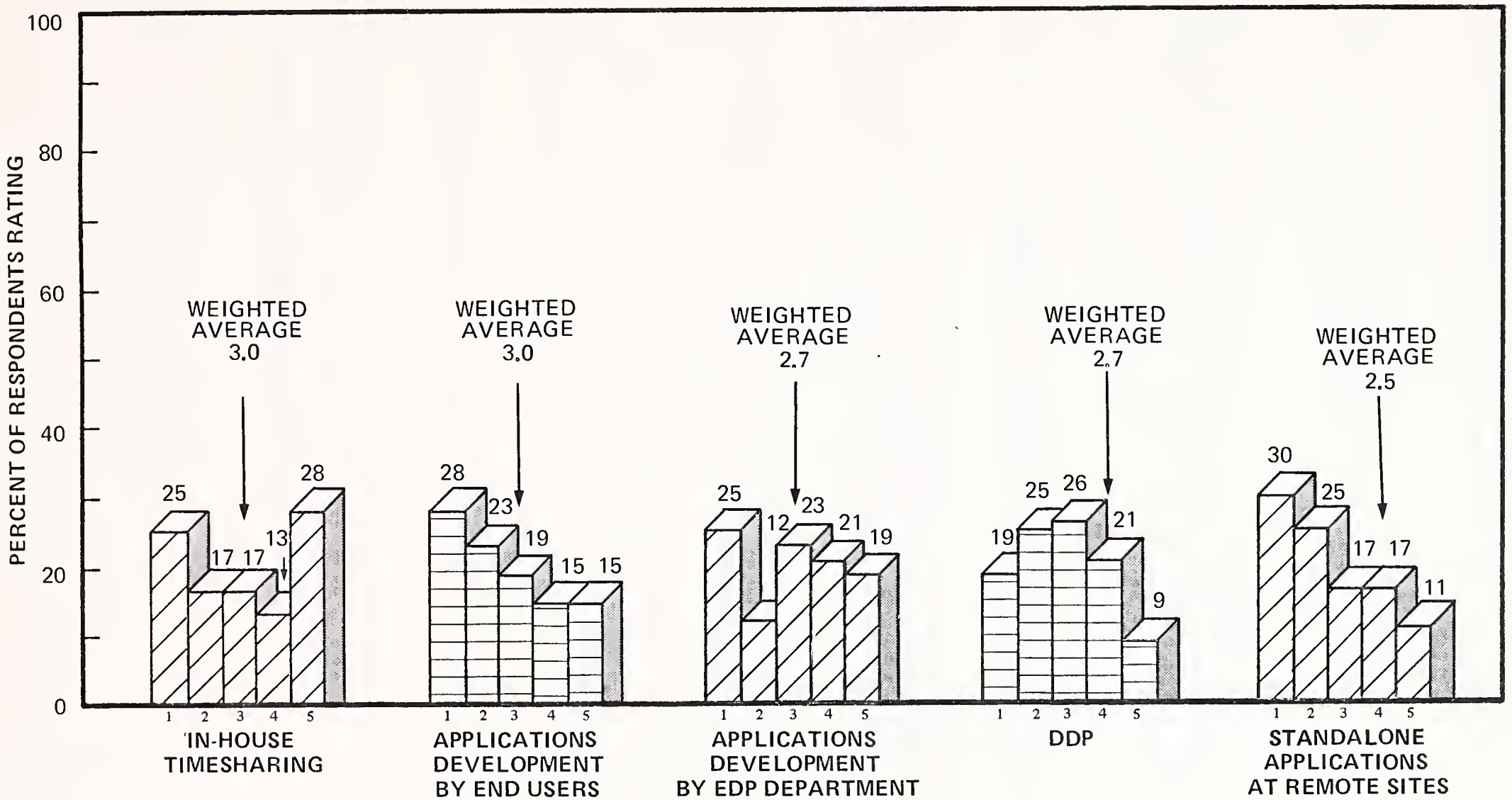
EXHIBIT V-6

ATTRACTIVENESS OF USING USHS TO PERFORM SELECTED FUNCTIONS AS REPORTED BY EDP MANAGERS



NUMBER OF RESPONDENTS = 53 (90%)

NOTE: RATED ON A SCALE WHERE 1 = LEAST IMPORTANT AND 5 = MOST IMPORTANT

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- EDP managers' attitudes concerning applications development by end users are in sharp contrast to those of end users.

  - End users regard applications development at users' sites as one of the most important reasons for buying USHS, rating it a weighted average of 3.8.

  - EDP managers, not as much in favor of moving applications development to users' sites, rated it a weighted average of 2.7.

F. MINICOMPUTER CONVERSION TO USHS

- A concept explored in this study is that of turning in-house small computers over to end user departments to become a part of USHS.

  - The response from EDP managers was negative. Eighty-one percent said that they would not consider it.

  - INPUT foresees the following obstacles to concept viability:

    . The concept is not compatible with USHS.

    . Compatibility problems will probably cost more than gains from networking.

    . EDP managers will have to allocate already strained resources to coordinate transer effort, further disrupting EDP department operations.

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G. REASONS FOR BUYING USHS

- Reasons for increasing computer/communications capability, as reported by EDP managers, are shown in Exhibit V-7.

  - Seventy-eight percent of the reasons EDP managers give for increasing capability (buying USHS, in this case) relate to new requirements. New applications at the user site, new facility plants or locations, and adding network capability are major reasons.

  - The data indicates that USHS vendors are tapping new markets.

- Offloading the central mainframes was expected to be a dominant reason for increasing computer/communications capability, but only 13% of EDP managers reported it as a reason.

- EDP managers were asked to express their preferences for financial methods of acquisition of computers in the 1980-1985 period by ranking alternate methods on a scale of 1-5.

  - There is a preference for unbundled pricing (weighted average = 3.7) versus:

    . Bundled pricing (weighted average = 2.8).

    . Lease and purchase, equally rated (weighted average = 3.3).

    . Transaction/usage pricing (weighted average = 2.5).

- EDP managers and end users have different views of the reasons for buying USHS. Their ratings are shown in Exhibits V-8 and V-9.

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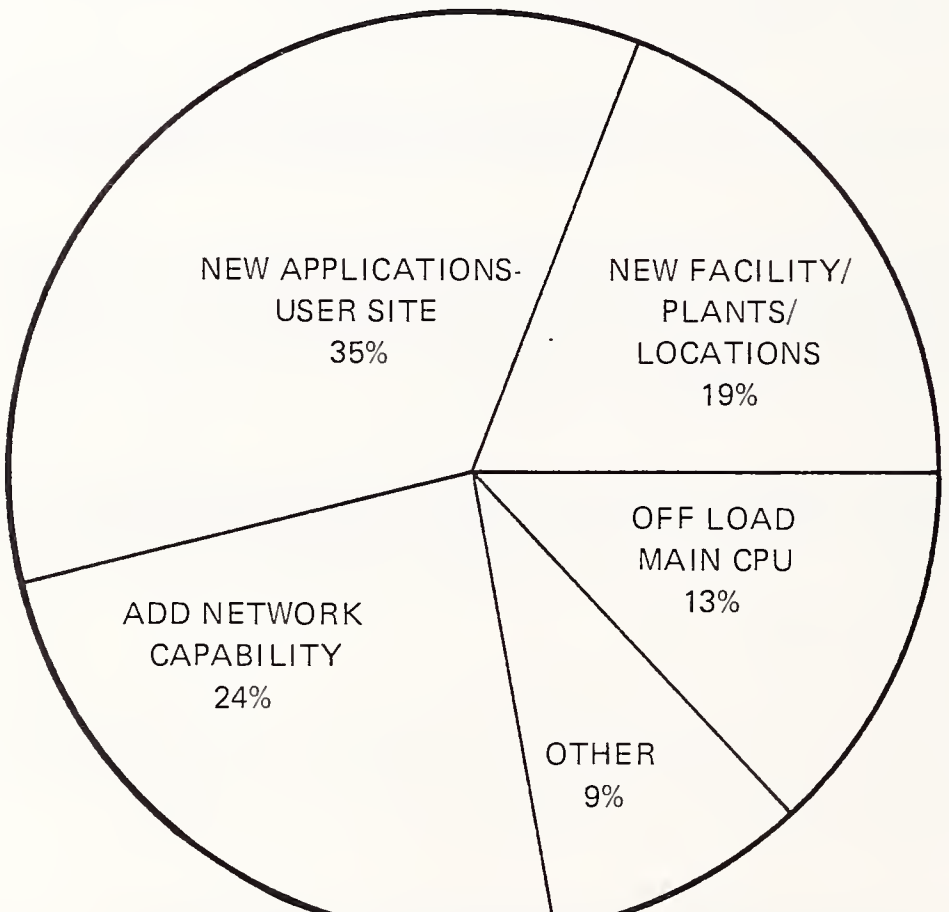
EXHIBIT V-7

REASONS FOR INCREASING
COMPUTER/COMMUNICATIONS CAPABILITY
AS REPORTED BY EDP MANAGERS



NUMBER OF RESPONDENTS = 59 (100%)

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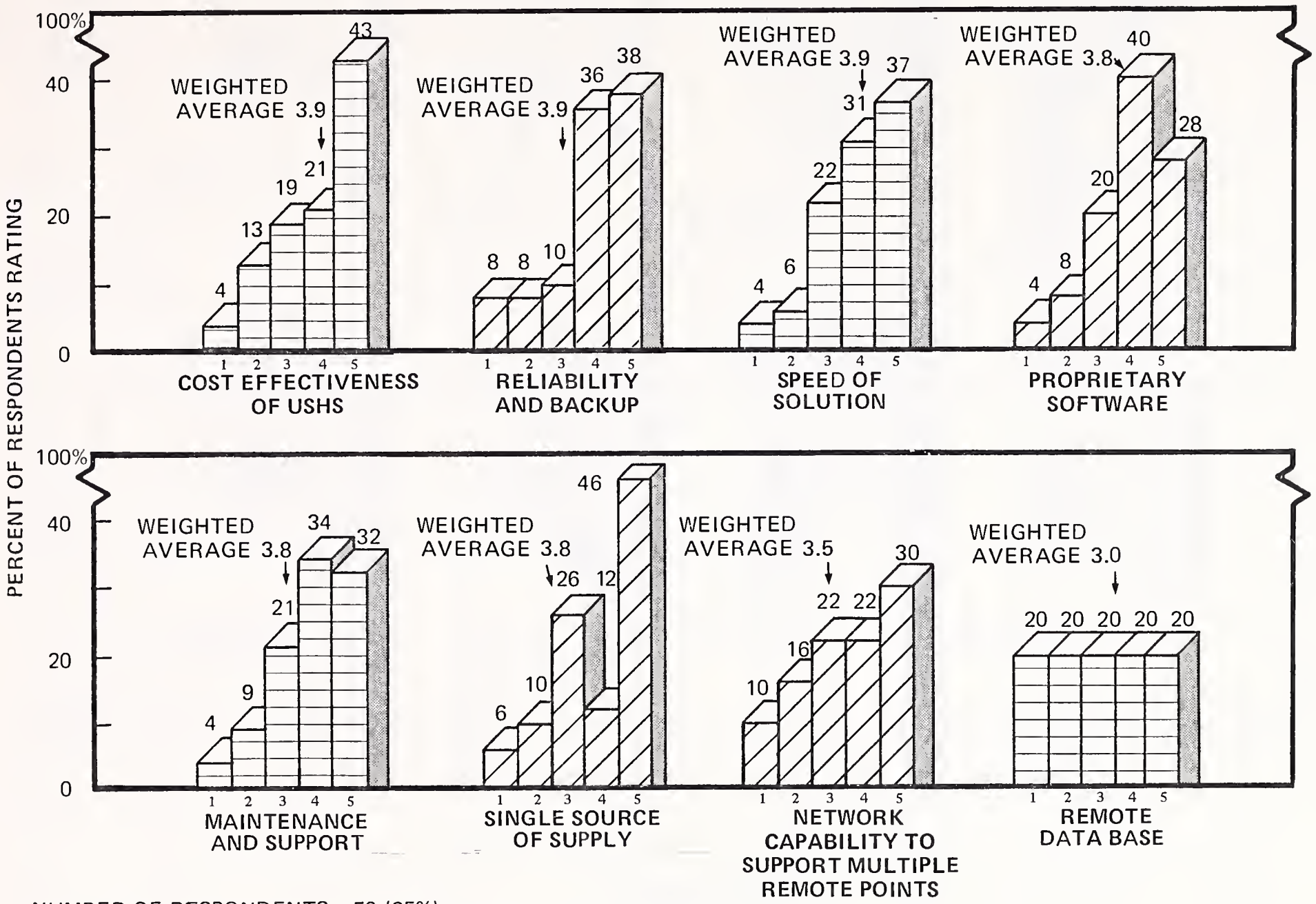
EXHIBIT V-8

EDP MANAGERS' RATINGS OF THE REASONS FOR BUYING USHS



NUMBER OF RESPONDENTS = 50 (85%)
NOTE: RATED ON A SCALE WHERE 1 = LOWEST AND 5 = HIGHEST

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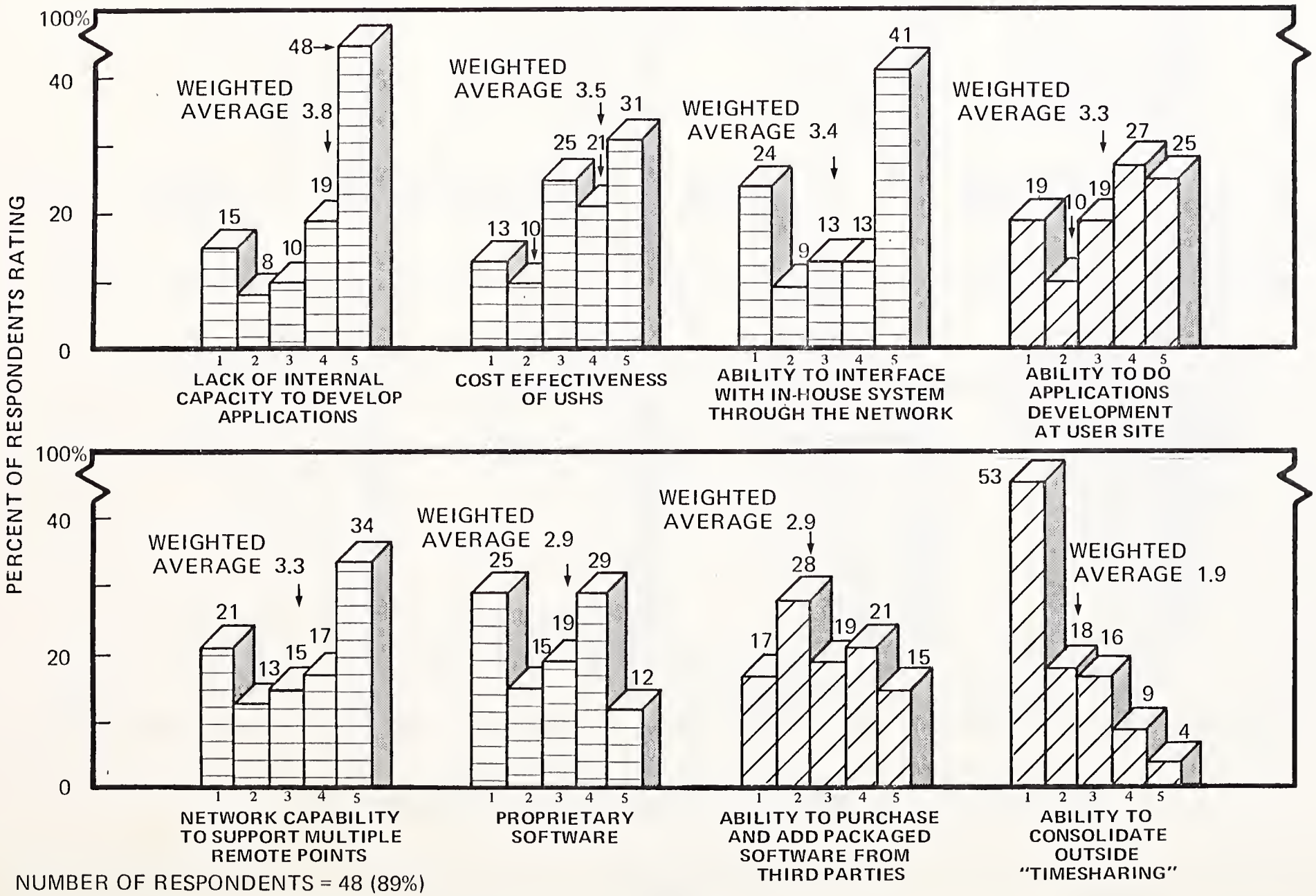
EXHIBIT V-9

END USERS' RATINGS OF THE REASONS FOR BUYING USHS



NUMBER OF RESPONDENTS = 48 (89%)

NOTE: RATED ON A SCALE WHERE 1 = LOWEST AND 5 = HIGHEST

- Cost effectiveness of USHS, rated a weighted average of 3.9 by EDP managers and 3.5 by end users, is the most important reason for buying USHS.

  . RCS costs are regarded as being too high and difficult to control with budgets.

  . The economics of placing computation at the user site drive the USHS market. Both EDP managers and end users agree as to the importance of USHS cost effectiveness.

- A typical comment by an EDP manager was: "Price performance is the main problem with RCS systems, they are no longer cost effective."

- Network capability to support multiple remote points, rated a weighted average of 3.5 by EDP managers and 3.3 by end users, is an essential feature of USHS.

  . Networking is perceived by both as the key to future DDP systems and as an important means for extended computing capability and remote maintenance.

- EDP managers rated proprietary software higher(weighted average = 3.8) than end users did (weighted average = 2.9).

  - Vendor-supplied proprietary software is an important element of USHS. Software systems are better understood by EDP managers who appreciate the value of a DBMS, like NOMAD.

  - A typical comment by an EDP manager was: "Available software is the key reason for going to USHS."

- EDP managers have system priorities that were not rated highly by end users, including:

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- Reliability and backup.

- Speed of solution.

- Maintenance and support.

- Single source of supply.

- Typical EDP manager comments were:

  . "Maintenance and support are becoming increasingly important."

  . "Single source of supply is really good, but can it happen?"

  . "Speed of solution is hard to demonstrate, but would be important if it were possible."

- End users have other priorities that were not rated highly by EDP managers.

  - The ability of USHS to do applications development at the user's site in order to shorten the applications development backlog is clearly an important reason for end users buying USHS.

  - USHS compatibility with the in-house mainframe is important to end users.

- EDP managers were asked to express their preference for USHS vendors. Results are shown in Exhibit V-10.

- Although IBM is clearly the preferred vendor, and would have a decided advantage among EDP managers if IBM chose to offer a USHS product, the difference in ratings is not large enough for vendor selection to be decided by this issue alone.

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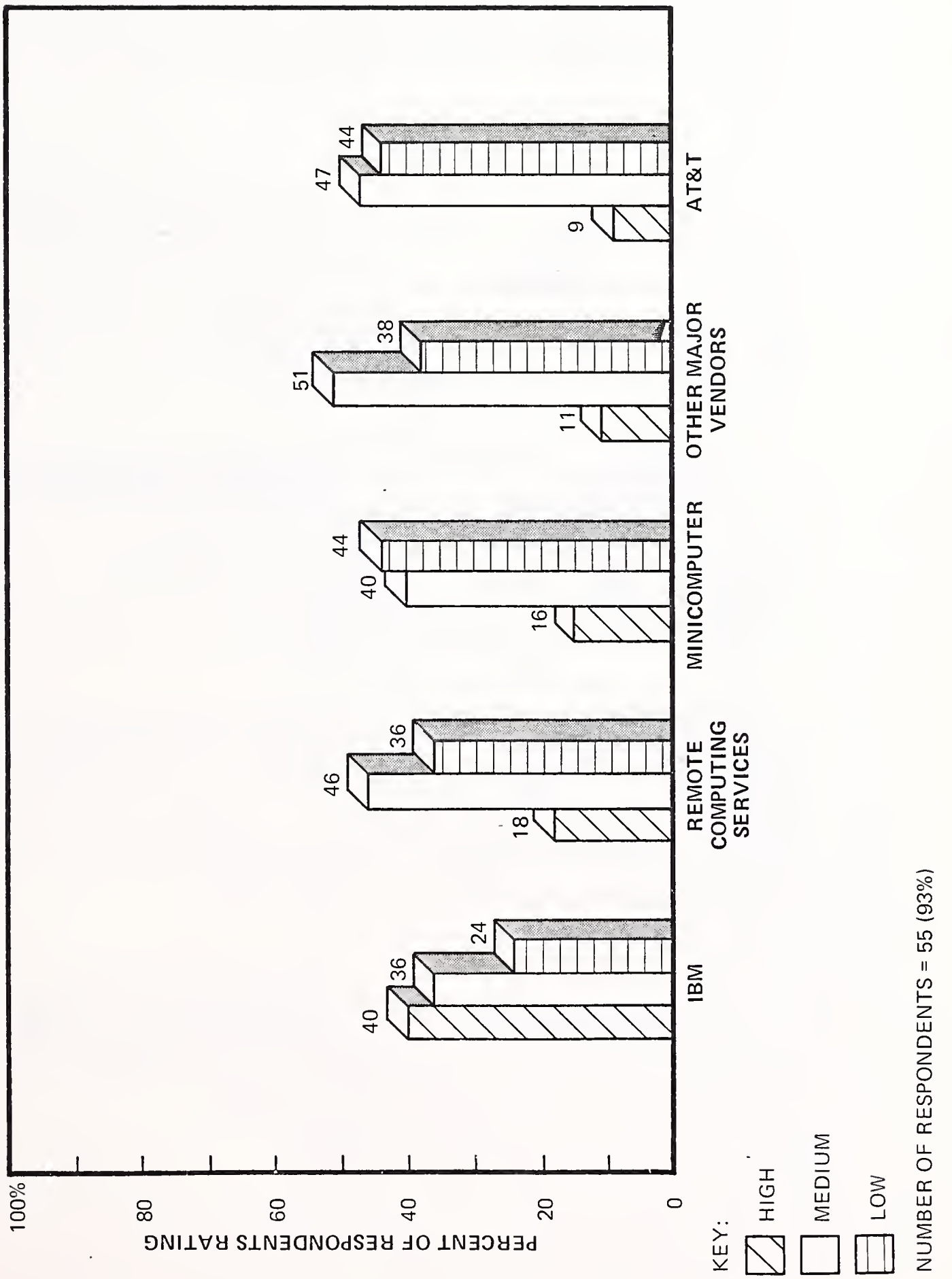
EXHIBIT V-10

PREFERRED USHS VENDORS AS RATED BY EDP MANAGERS



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- RCS, minicomputer, and other major vendors were rated well.

- Among most EDP managers, AT&T is not regarded as a viable vendor.

- Selected comments made by EDP managers with respect to vendor selection are:

  - "We wouldn't do it at all. We are an IBM shop installing 4300s in a DDP environment."

  - "No vendor is attractive. We do not want to give up this kind of control to the user when the information they collect needs to be integrated with the central computer."

  - "We have a natural reluctance to deal with external services, prefer to deal with manufacturers directly."

- These responses are still further evidence that the RCS vendors will have to sell USHS directly to the EDP managers as well as end users.

- EDP managers were also asked to rate the important factors in vendor selection. Results are shown in Exhibit V-11.

  - Price performance, maintenance and support, and software are clearly dominant reasons for vendor selection.

  - It is also important to offer access to a network. EDP managers did not give emphasis to network coverage and network characteristics. These will be more important as USHS systems develop in a DDP environment.

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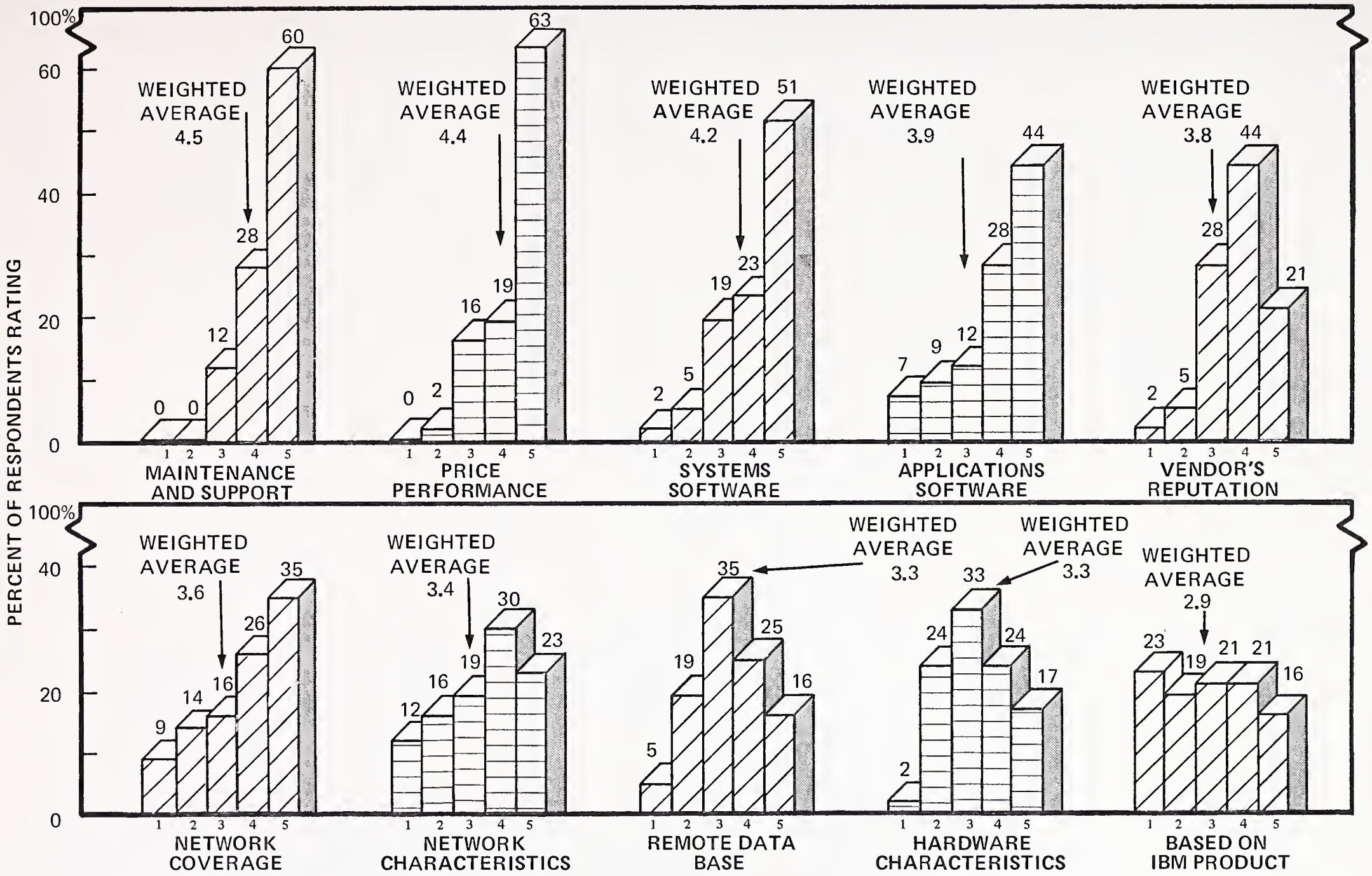
EXHIBIT V-11

FACTORS IN USHS VENDOR SELECTION AS RATED BY EDP MANAGERS



NUMBER OF RESPONDENTS = 43 (73%)

NOTE: RATED ON A SCALE WHERE 1 = LOWEST AND 5 = HIGHEST

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VI ROLE OF FINANCIAL EXECUTIVES

VI ROLE OF FINANCIAL EXECUTIVES

A. INTRODUCTION

- INPUT had difficulty finding financial executives involved with user site hardware issues. Most of the financial executives contacted felt only peripheral involvement in the computer selection decision process.

- A total of 21 financial executives were interviewed. The data were aggregated into two groups:

  - Seven banking and finance executives.

  - Fourteen financial executives in other industries.

- Although financial executives have only minimal involvement in the computer selection process, respondents have major input in the approval process.

- End users and EDP managers represented on committees investigate, select, and recommend on-site hardware services; services which financial executives review and recommend for approval usually by top corporate management.

- The corporate vice president or president, in most instances, makes the final decision.

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B. PROCUREMENT APPROVAL LEVEL

- The maximum dollar expenditure levels that can be approved at various management levels are shown in Exhibit VI-1.

  - Corporate management of respondent companies reserve the right to approve systems costing over $100,000.

  - The approval level for end users is very low. Only one-half of end users can purchase as much as standalone minicomputers costing less than $5,000.

- Bank financial executives reported that banks are highly centralized; hence, EDP procurement rests with corporate management.

C. IMPACT OF MULTIPLE SITES ON PROCUREMENT

- All financial executive respondents reported that management approval levels did not increase where multiple site procurements are involved.

- Banking and finance executives, however, did report that procurement approval levels are moving higher in management as centralization (banks, bank holding companies) to obtain standardization occurs.

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EXHIBIT VI-1

MAXIMUM DOLLAR EXPENDITURE LEVELS FOR APPROVAL
OF EDP EQUIPMENT OR SERVICES EXPENDITURES
AS REPORTED BY FINANCIAL EXECUTIVES

SYSTEM	EXPENDITURE APPROVAL LEVEL			
	END USER MANAGEMENT	EDP MANAGEMENT	FINANCIAL MANAGEMENT	CORPORATE MANAGEMENT
MAJOR COMPUTER SYSTEM COSTING MORE THAN $1 MILLION	–	1	4	15
MEDIUM-SIZED SYSTEM IN $100,000 - 1 MILLION RANGE	–	2	4	15
SMALL COMPUTER SYSTEM COSTING LESS THAN $100,000	2	4	5	9
$15,000 PER MONTH COMPUTER SERVICE WHICH HAS COMPUTER AT COMPANY SITE	4	3	3	8
$5,000 PER MONTH COMPUTER SERVICE WITH TERMINAL AT COMPANY SITE	5	5	3	4
$5,000/STANDALONE COMPUTER SYSTEM	8	4	3	2

NUMBER OF RESPONDENTS = 15 (71%)

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D. IMPACT OF USHS LOCATION

- Better user turnaround time is the major impact of locating USHS in end user departments. However, financial executive respondents felt that locating computers in the EDP department would avoid problems with systems operations, maintenance, and programming personnel.

E. PROCUREMENT PROCESS CHANGES

- Financial executives felt that purchasing smaller computers would increase in the 1980s. However, executives felt that centralization of purchasing power would become necessary to achieve control and standardization of like EDP functions among operating companies (banks).

  - As shown in Exhibit VI-2, the trend toward centralization is strong for the purchasing decision as well as major EDP functions.

- The data in Exhibit VI-3 indicate that banking and finance executives expect little change in the current (1979) versus future (1985) procurement process:

  - Some shift of procurement approval to EDP management is consistent with the trend toward centralization.

  - End users, in conjunction with EDP management, identify need and establish justification.

  - EDP management, working with end user, selects vendors.

  - EDP management approves vendor, with input from end user and financial management.

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EXHIBIT VI-2

PLANS FOR CENTRALIZATION/DECENTRALIZATION OF EDP RELATED FUNCTIONS IN THE 1980s AS REPORTED BY FINANCIAL EXECUTIVES

EDP FUNCTION	CENTRALIZE	DECENTRALIZE
PURCHASING DECISION	12	2
COMPUTER OPERATIONS	10	3
APPLICATIONS SELECTION	11	3
ON-GOING PROGRAMMING	11	3

NUMBER OF RESPONDENTS = 14 (67%)

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EXHIBIT VI-3

MANAGEMENT RESPONSIBILITY IN
THE PROCUREMENT PROCESS
AS REPORTED BY FINANCIAL EXECUTIVES,
1979-1985

FUNCTION	USER MANAGEMENT		EDP MANAGEMENT		FINANCIAL MANAGEMENT		TOP MANAGEMENT	
	NOW	1985	NOW	1985	NOW	1985	NOW	1985
IDENTIFY NEED	13	12	8	8	4	4	2	2
ESTABLISH JUSTIFICATION	10	8	10	10	5	5	—	—
SELECT VENDOR	8	8	10	12	5	2	—	—
APPROVE VENDOR	8	7	13	13	5	5	2	2
APPROVE PROCUREMENT	6	7	9	15	5	7	9	15

NUMBER OF RESPONDENTS = 16 (76%)

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- Top management approves EDP department's procurement recommendation, supported by end user and financial management.

F. SHIFT OF RCS SERVICES IN-HOUSE

- The major portion (69%) of all financial executives interviewed would consider shifting RCS services to an in-house system (including USHS) when the annual RCS expenditure level reaches $500,000 (Exhibit VI-4).

  - The threshold is higher in the banking and finance sector. Here only 44% of financial executives interviewed would consider shifting at that level. The banking and finance sector is a good market for offering USHS on high capacity mega minicomputers.

- Typical comments from financial executive respondents on shifting RCS to USHS are:

  - "The savings are such that the ADP ON-SITE costs $17,000 per month while the equivalent remote computer services fee would be over $28,000 per month."

  - "Could get the same RCS applications in-house with the NCSS 3200 with no conversion costs - so a definite cost savings."

G. COST AS A FACTOR

- The majority (85%) of banking and finance executive respondents reported that cost was not the dominant factor in deciding to place a computer on-site.

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EXHIBIT VI-4

ANNUAL LEVEL OF OUTSIDE RCS EXPENDITURES NECESSARY FOR CONSIDERING INSTALLATION OF AN IN-HOUSE COMPUTER AS REPORTED BY FINANCIAL EXECUTIVES

ANNUAL RCS EXPENDITURES LEVEL ($ 000)	NUMBER OF RESPONDENTS
$50-100	4
$100-250	3
$250-500	4
$500-750	1
$750-1,000	–
> $1,000	–
WON'T CONSIDER/NOT APPLICABLE	4

NUMBER OF RESPONDENTS = 16 (76%)

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- Factors such as control, service, and available applications were cited as primary determinants.

- The opposite was found for other industries where, for general time-sharing use, 88% cited cost as the major factor.

H. ATTITUDES TOWARD COMPUTER SERVICES

- Finance executives preferred to buy computers for in-house use instead of purchasing computer services. Advantages and problems cited were:

  - Gain control over operations.

  - Spend dollars internally.

  - Increase problems with EDP staff.

  - Maintenance and review problems increase.

  - Increased time to develop applications.

- Service and quality applications were what finance executives were looking for in going to RCS USHS services.

- The majority (68%) of finance executives were open to the use of computer services (Exhibit VI-5). Those in favor (31%) cited specific areas, such as financial information systems and investment planning, as most applicable for using computer services.

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EXHIBIT VI-5

FINANCIAL EXECUTIVES' ATTITUDES TOWARD BUYING COMPUTER SERVICES

ATTITUDE	1979	1980
OPPOSED	5	3
NEUTRAL	6	7
IN FAVOR	5	6

NUMBER OF RESPONDENTS = 16 (76%)

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- As shown in Exhibit VI-6, financial executive respondents did not look favorably at buying computer services from major hardware vendors, implying that services including site hardware from RCS vendors would at least receive consideration.

  - The exception, as expected, was IBM, where 56% were favorably interested.

I. IMPACT OF COMMUNICATIONS

- Financial executive respondents felt that communications requirements were rapidly growing. Bank finance executives felt that the growth was due to two factors:

  - Networking to provide common services to all banks in multi-bank holding companies.

  - The need to go to on-line operations in an effort to combat rapidly escalating labor costs.

- Executives reported that increased communications requirements will shift computer purchasing to smaller computers for distributed processing systems and for specialized areas such as insurance agency accounting.

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EXHIBIT VI-6

FINANCIAL EXECUTIVES' ATTITUDES
TOWARD BUYING SERVICES FROM LEADING
HARDWARE VENDORS

VENDOR	RESPONDENTS ATTITUDE (NUMBER OF RESPONDENTS)			
	OPPOSED	NEUTRAL	IN FAVOR	HIGHLY IN FAVOR
AT&T	—	12	4	—
IBM	1	6	4	5
OTHER MAINFRAME VENDORS	1	9	4	2

NUMBER OF RESPONDENTS = 16 (76%)

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VII APPLICATIONS ANALYSIS

VII APPLICATIONS ANALYSIS

A. TYPES OF USHS APPLICATIONS PROGRAMS

- The key on-line applications to be developed between now and 1985 are varied in nature, as reported by EDP managers in Exhibit VII-1.

  - USHS vendors will find many choices for applications program development.

    . Fifty-four companies identified 107 on-line applications to be developed, used in 2,400 domestic geographical sites.

- Plans are for over half of these applications to be processed in an interactive mode, with the other half equally split between distributed data processing and remote batch.

B. APPLICATIONS DEVELOPMENT

- The applications development backlog is a difficult problem for EDP managers and end users alike.

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EXHIBIT VII-1

USHS ON-LINE APPLICATIONS TO BE DEVELOPED BY 1985 AS REPORTED BY EDP MANAGERS

INDUSTRY AND NUMBER OF COMPANIES RESPONDING	NUMBER OF RESPONSES	APPLICATIONS	YEAR ACTIVE	TOTAL NUMBER OF SITES		METHOD OF PROCESSING (NUMBER OF RESPONDENTS)		
				DOMESTIC	INTERNATIONAL	DDP	INTERACTIVE	REMOTE BATCH
BANKING AND FINANCE - 10 COMPANIES	4	INQUIRY-TELLER SUPPORT	1980-1985	243	60	—	4	—
	3	CUSTOMER INFORMATION SYSTEMS	1981-1985	241	80	—	2	—
	1	14 OTHER APPLICATIONS	1980-1985	1,636	110	3	10	4
		TOTAL		2,120	250	3	16	4
PROCESS MANUFACTURING - 8 COMPANIES	2	INVENTORY CONTROL	1980	650	6	1	—	1
	2	BILLING	1983	110	—	—	1	1
	1	13 OTHER APPLICATIONS	1980-1983	1,350	10	5	8	2
		TOTAL		2,110	16	6	9	4
DISCRETE MANUFACTURING - 18 COMPANIES	8	ORDER ENTRY	1980-1983	60	—	2	6	3
	6	MATERIAL REQUIREMENTS PLANNING	1980-1984	40	2	1	6	2
	4	ACCOUNTS RECEIVABLE	1980-1981	80	—	—	3	2
	4	INVENTORY CONTROL	1980-1983	30	—	2	3	1
	1	27 OTHER APPLICATIONS	1980-1985	200	60	11	23	5
		TOTAL		410	62	16	41	13
UTILITIES - 6 COMPANIES	1	15 APPLICATIONS	1980-1982	320	—	3	11	3
OTHER INDUSTRIES - 12 COMPANIES	3	ACCOUNTING	1982-1983	130	190	2	2	—
	2	MODELING	1981	—	—	—	1	—
	1	25 OTHER APPLICATIONS	1981-1985	1,510	800	10	17	8
		TOTAL		1,640	990	12	20	8

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- EDP managers report that the current backlog is averaging 20 months, and becoming longer.

- USHS offers a partial solution to this problem by providing for applications development at the user site.

- Eighty-seven percent of EDP managers reported that they are actively looking for design and programming tools and methods to assist in applications development, and are also actively considering buying applications software products to meet users needs.

- EDP managers report that the portion of applications development done by end users is presently 11%, ranging to 80%; and is projected to be 24%, ranging to 90%, by 1985.

C. DATA COMMUNICATIONS

- Data communications through networking is a very important aspect of USHS offerings. INPUT recommends that USHS vendors treat it as an essential element of the system, if not immediately then certainly in future years.

  - The NCSS 3200 is initially being installed as USHS with, in some instances, the network being incidental; but future devlopment to multiple installations in a DDP environment is dependent on the network.

  - Availability of remote computing services vendors' networks, including telecommunications systems software, is an important differentiating factor between RCS vendor offerings and those of minicomputer vendors.

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- Both end users and EDP managers report growing importance of networking, with 70% rating it of high importance by 1985, as shown in Exhibit VII-2. There were no significant differences between the views of end users and EDP managers on this subject.

- Typical comments by respondents concerning the importance of a network were:

  - "Essential - may be the most important element."

  - "Will become more significant by 1985. We intend to develop network capability slowly."

  - "More on-line transmission will be developed as new applications come up."

  - "Price will decrease in the future and reliability will improve."

  - "Important because of corporate commitment to DDP system."

  - "Need to link together branch offices."

- Interest in external data bases among end users is limited, with only 35% regarding access to a data base important for their needs.

  - Communication between remote locations is a more important use of the network than access to a remote data base.

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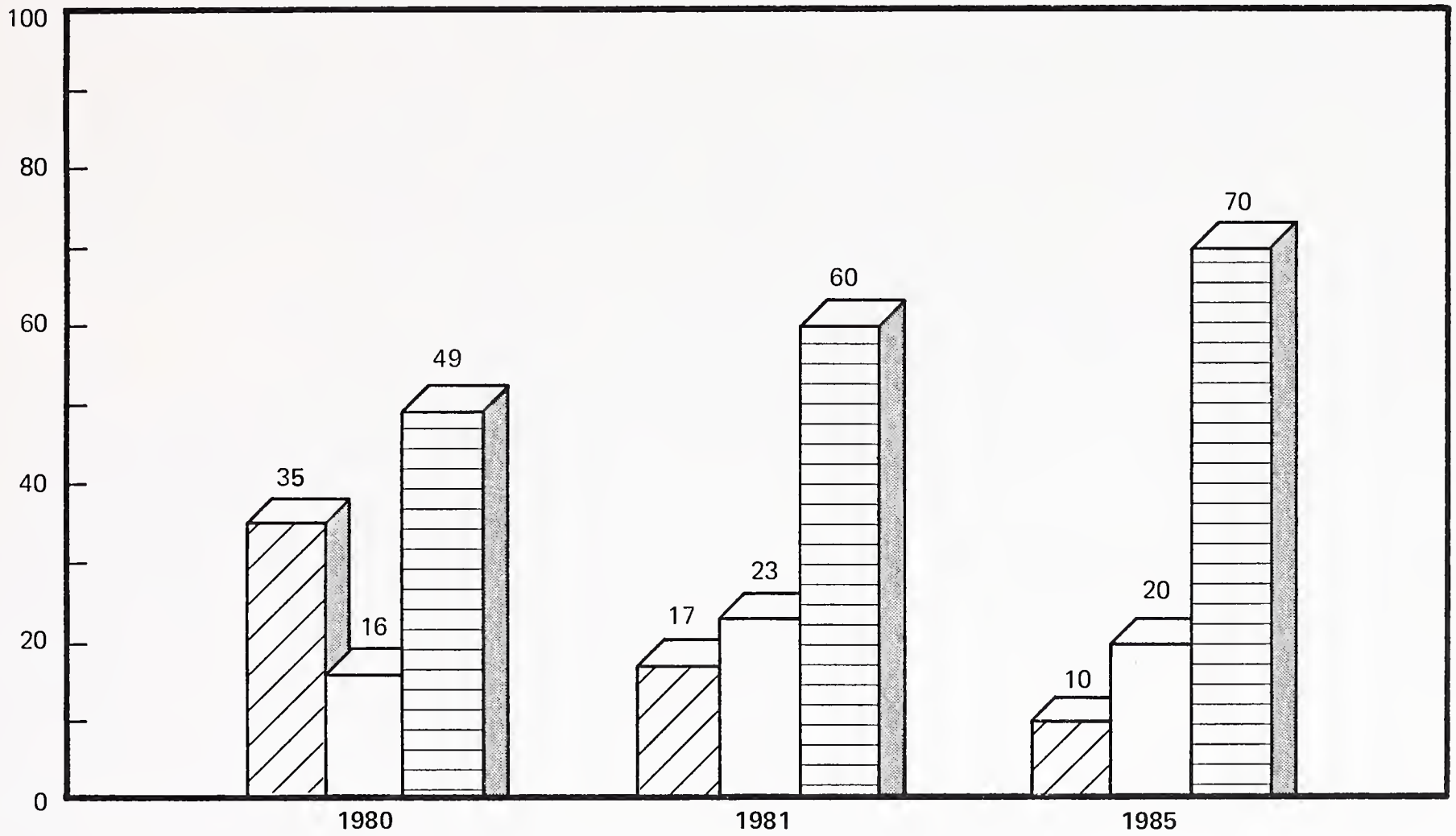
EXHIBIT VII-2

IMPORTANCE OF AVAILABILITY OF A NETWORK
WITH THE PURCHASE OF A COMPUTER AS REPORTED
BY BOTH END USERS AND EDP MANAGERS



KEY:

- LOW
- MEDIUM
- HIGH

NUMBER OF RESPONDENTS = 95 (84%)
(END USERS AND EDP MANAGERS)

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VIII CURRENT USHS PRODUCT OFFERINGS

"

VIII CURRENT USHS PRODUCT OFFERINGS

A. UTILITY PROCESSING SERVICES MARKET SEGMENT

1. GENERAL

- In 1978, a number of RCS companies announced plans to offer DEC System 2020 computers. National CSS unveiled plans to introduce an IBM 370-compatible mega minicomputer, the Two Pi 3200 series. However, only two companies, ADP and NCSS, have actively marketed to the utility services portion of the USHS market.

  - Others, including CSC, Informatics, Tymshare, and Xerox, are actively considering the market but have delayed entry, possibly to determine the success of ADP and NCSS offerings, but more likely, because of the IBM 8100 and 4300 announcements.

- There is evidence that major RCS vendors are cautious about the USHS market because entry could cut revenues and lower profitability, due to RCS conversion to lower price USHS.

  - INPUT believes that in the short term, revenue loss will be marginal, and in the long term, profitability will increase from expanded services. Additional entries into the USHS utility market are expected in 1980.

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2. ADP NETWORK SERVICES, INC.

- ADP's user site hardware service, ADP/ONSITE, is based on a modified DEC-2020 mega minicomputer. ONSITE includes operating and applications software, and access to the ADP network for maintenance, operations, and back-up computers.

- With ONSITE, the equipment is bundled with the network.

- In this study, the base price of a system, as reported by respondents, including maintenance and support, ranged from $7,000 to $40,000 per month with an average of $22,000 per month.

  - Considering other available data, the 1979 average price for an ON-SITE system is believed to be $18,000 per month.

  - All systems are leased for a minimum period of three years. There is no purchase option.

- A full range of software services is offered, including the Information Processing Language (IPL).

- ONSITE includes "link software" for compatiblity with IBM 360/370 computers. Linking USHS to the host computer is a very important consideration for many users. It is also a problem to ADP, as customers are not generally satisfied that the compatibility problem is solved for ONSITE.

- Maintenance and reliability are important features of ONSITE. ADP stresses to their clients that the DEC 2020 is a proven machine. ADP reports their current experience as:

  - Prime time availability = 99% or better.

  - Mean time to recover = 18 minutes.

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- Mean time between interruptions = 2.6 months.

- Key elements of the ADP/ONSITE are:

  - Uses a modified DEC 2020 (minicomputer).

  - Priced bundled with service.

  - Price range is $7,000-40,000 per month.

  - Offered for lease only.

  - Number of ports is 8-32.

  - Size of memory is 1-2+ MB.

  - Size of disk storage is 45-300 MB.

3. NATIONAL CSS, INC.

- The National CSS 3200 Series, based on a Two Pi mega minicomputer, can be used in a USHS or a standalone configuration.

- The 3200 product strategy is aimed at replacing IBM 370 based machines, and is IBM compatible.

  - The 3200 system competes with DEC, Data General, Hewlett-Packard, Interdata, and Prime systems in its standalone mode.

- Three mainframe configurations are currently offered:

  - NCSS 3200/HOST is the central unit which functions as a standalone unit. Purchase price is $52,000.

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- NCSS 3200/Server is a special purpose machine designed to augment processing power. A server attaches to a HOST processor by a high speed communications line permitting the HOST to share applications processing with the Server and the Server to share the same peripherals with the HOST. Purchase price is $42,000.

- NCSS 3200/REMOTE processor is designed to work in combination with a HOST. REMOTE provides auxiliary data handling capacity for applications oriented toward data collection and communication. Purchase price is $42,000.

- The communication aspect of NCSS 3200 using the NCSS network is important for a future DDP network.

- The system is offered for purchase either direct or through third party lease.

  - The purchase price, including processor, peripherals, and proprietary software, varies from $185,000 to $800,000, with an average price of $250,000.

- The capability of NOMAD, NCSS's data base management system, is a very important reason for buying the USHS offering. The new NOMAD DBMS, due to be released in a few months, will have capability of simultaneous entry to, and access from, a common data base.

- There is access to a backup NCSS computer through the network for additional processing capacity and maintenance.

- Key elements of the NCSS 3200 are:

  - Uses a Two Pi 3200 minicomputer.

  - Pricing is unbundled.

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- Price range is $185,000 to $800,000 ($250,000 average).

- Offered for purchase only, or third party lease.

- Number of ports is 1 to 32.

- Size of memory is 0.25 to 2 MB.

- Size of disk is 200 to 2,000 MB.

4. GENERAL ELECTRIC INFORMATION SERVICES COMPANY

- The GEISCO entry into the USHS market is based on the MARKLINK intelligent terminal tied to the massive GE MARK III network.

  - The MARKLINK terminal is roughly one-tenth the price of the ADP and NCSS offerings, giving GEISCO the potential of reaching new markets.

  - MARKLINK processing is well suited for industry specialty processing, such as inventory control, customer inquiry, and order entry.

- The components include MARKLINK intelligent terminal, applications software, teleprocessing network, host computers centrally clustered, and maintenance.

- MARKLINK is based on Texas Instruments 990 and 7400 series intelligent terminals.

- The MARK III network links 600 metropolitan areas in 22 countries. Host processing takes place in Washington, Cleveland, and Amsterdam.

- Typical MARKLINK terminals are priced for purchase from $21,000 to $94,000, or leased from $800 to $3,700 per month.

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- Including maintenance and communications cost, an average lease price per terminal is $2,500 per month.

- Key elements of the MARKLINK system are:

  - Uses the Texas Instruments 990 and 774 series minicomputers.

  - Price is bundled with services.

  - Price range is $21,000 to $94,000, or $800 to $3,700 monthly.

  - Offered for lease or purchase.

  - Number of ports is 1 to 16.

  - Size of memory is 69 to 352 kilobytes.

  - Size of disk storage is 10 to 20 megabytes.

- The first MARKLINK system is an inventory control system for distributed computer processing for warehouse operations of the General Electric Supply Company (GESCO).

  - The system serves 173 warehouses in 31 regions throughout the United States.

  - There is over $8 million, including 150 man years of development effort, invested by GESCO to date.

  - The development effort of GESCO involved six months to develop the specifications and one more year to first beneficial use.

  - When completed by the end of 1980, the system will employ 800 MARKLINK terminals.

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- Although the costs for such a system are very large, so too are the potential cost savings.

  - The system has the capability of simultaneous entry to a common data base. Permitting employment of distributed physical inventory will greatly reduce total inventory, with different parts stocked by different warehouses instead of each warehouse maintaining a complete inventory.

  - Cost saved by minimizing inventory, more economical buying practices, and minimizing billing lag are expected to more than compensate for systems development and operating costs.

- Features of the system include customer inquiry, parts search credit check, filling order forms, shipment addressing, tax coding, updating inventory, purchasing to replenish stock, printing purchase orders, and keeping prices updated.

B. INDUSTRY SPECIALTY PROCESSING SERVICES

- USHS vendors have been active in the industry specialty portion of the RCS market for some time, developing a market that is much larger than the utility services portion of the RCS market. A partial listing of those vendors most active in the specialty services market is shown in Exhibit VIII-1.

- Industry specialty processing services were not the focus of this study, but have been included in the forecasts.

  - They will remain the largest market segment for USHS, and vendors entering the USHS market must carefully consider whether offerings are made to utility services, specialty services, or both.

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EXHIBIT VIII-1

USHS VENDORS ACTIVE IN INDUSTRY SPECIALTY SERVICES

FINANCIAL INQUIRY SERVICES

- GTE INFORMATION SYSTEMS
- QUOTRON SYSTEMS INC.
- BUNKER RAMO
- IBM CANADA

MEDICAL INFORMATION SYSTEMS

- SHARED MEDICAL SYSTEMS
- MCAUTO HEALTH SERVICES DIVISION
- TECHNICON MEDICAL INFORMATION SYSTEMS
- HBO

OTHER SERVICES

- GEISCO
- INFORMATICS
- KEYDATA
- REYNOLDS AND REYNOLDS
- ELECTRONIC DATA SYSTEMS
- REMOTE COMPUTING CORP.
- SEI CORPORATION
- VCS (ON-LINE SYSTEMS)
- RAPIDATA

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- This market is particularly characterized by vendor-supplied software unique to an industry or industry group, software which users employ to produce industry specialized solutions.

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IX MARKETING ISSUES

IX MARKETING ISSUES

A. SALES AND BUYING PROCESS

1. PROCUREMENT RESPONSIBILITIES

- The process of procuring computer equipment and services involves an interaction among the end user, EDP manager, financial management, and top management, at different levels during the procurement process.

  - The phases of the procurement process are:

    . Identify need.

    . Establish justification.

    . Select vendor.

    . Approve vendor.

    . Approve procurement.

- Exhibit IX-1 presents the management responsibilies in the phases of the USHS procurement process as viewed by respondent end users and EDP managers.

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EXHIBIT IX-1

MANAGEMENT RESPONSIBILITIES IN THE USHS PROCUREMENT PROCESS AS VIEWED BY RESPONDENTS

FUNCTION	MANAGEMENT	REPORTED BY	
		END USER MANAGEMENT (PERCENT)	EDP MANAGEMENT (PERCENT)
IDENTIFIES NEED	END USER	58%	28%
	USER AND EDP	28	41
	EDP	6	24
	FINANCIAL	4	2
	TOP	4	5
ESTABLISHES JUSTIFICATION	END USER	48	24
	USER AND EDP	26	34
	EDP	19	33
	FINANCIAL	4	7
	TOP	3	2
SELECTS VENDOR	END USER	38	5
	USER AND EDP	30	24
	EDP	28	65
	FINANCIAL	2	2
	TOP	2	4
APPROVES VENDOR	END USER	21	—
	USER AND EDP	19	22
	EDP	35	41
	FINANCIAL	4	10
	TOP	21	27
APPROVES PROCUREMENT	END USER	8	2
	USER AND EDP	6	2
	EDP	13	3
	FINANCIAL	4	19
	TOP	69	74

NUMBER OF RESPONDENTS: END USER = 53 (98%)
EDP MANAGER = 58 (98%)

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- End users and the EDP managers report their respective roles in the procurement process differently. For example, the end users believe they have basic management responsibility for identifying the need, whereas the EDP managers see it as a shared responsibility.

  - Fifty-eight percent of end users reported that they had management responsibility for identifying the need, but only 28% of EDP managers reported that end users had that responsibility.

- Establishing justification is a joint effort by end users and EDP managers, with occasional involvement by corporate financial officers.

- Vendor selection is the province of EDP managers. End users have an involvement in the selection, but not responsibility.

- Vendor approval involves both financial and top management acting on the recommendations of the EDP manager.

- Final approval of the procurement is generally reserved for top management, with recommendations from the chief financial officer. The end users and EDP managers generally do not have this authority.

- Procurement of computer equipment and services is treated as a capital expenditure.

  - A comment from one of the EDP managers summarizes their perception of the procurement process:

    . "The user identifies the need and presents his objectives. The EDP manager reviews it, selects the vendor, then goes through the capital appropriation procedures."

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2. VENDOR SELECTION

- End users identified the most common methods used in selecting vendors of computer equipment and services:
  - Twenty-seven percent from formal bids.
  - Thirty-four percent from sales presentations.
  - Twenty percent from referrals.
  - Nineteen percent from other methods.
- Identifying sales presentations as the most common method, respondents also gave an important weighting to formal bids and referrals as supporting the selection.
- Other methods identified were:
  - Business shows.
  - Informal methods.
  - Consultation between corporate end users.

3. PREFERRED VENDORS

- Vendors which EDP managers would consider first for additional computer/communications capability are shown in Exhibit IX-2.
  - Although over one-half chose IBM, 20% chose processing services and minicomputer vendors, a good indication of USHS market potential.
- Awareness of USHS vendor offerings among end users is very low.

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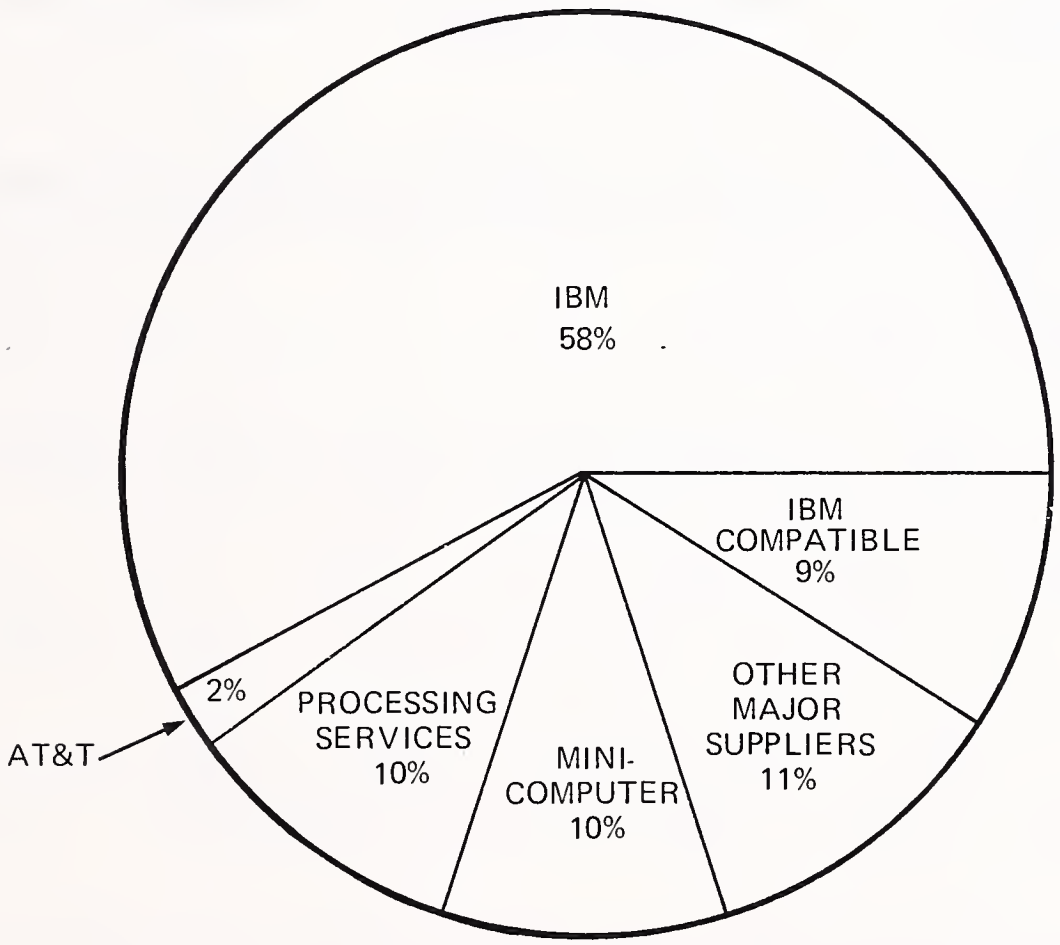
EXHIBIT IX-2

VENDORS PREFERRED FOR ADDITIONAL COMPUTER/COMMUNICATIONS CAPABILITIES AS REPORTED BY EDP MANAGERS



NUMBER OF RESPONDENTS (EDP MANAGERS) = 59 (100%)

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- When end users were asked what current USHS vendors they would consider using, only 10 out of 54 respondents were able to identify the vendors. These 10 respondents were current customers of ADP, NCSS, or GEISCO.

- Although awareness of USHS offerings is also low among EDP managers, they were able to respond to USHS questions. Their awareness of, and interest in, using present USHS offerings are shown in Exhibit IX-3.

  - Awareness of present USHS offerings was rated either low or none in over 70% of the responses.

  - However, over 50% of respondents would consider using USHS.

  - Typical comments are:

    . "Haven't considered this approach - we think the problem will go away when we install 4300s in user sites."

    . "Would consider USHS to offload the in-house computer."

    . "Greatest benefit of USHS would be to back up the central site hardware and to offload program development."

    . "Initially would stay away from USHS - we prefer to be self sufficient."

- End users' rating of vendors as sources of computers for USHS systems are shown in Exhibit IX-4.

  - Although end users would prefer IBM as the source of computers for USHS, they find minicomputer vendors like DEC, HP, Two Pi, Prime, etc., almost equally acceptable.

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EXHIBIT IX-3

EDP MANAGERS' AWARENESS OF AND INTEREST IN USING PRESENT USHS OFFERINGS

PRODUCT	AWARENESS OF USHS OFFERINGS				WOULD CONSIDER USING	
	HIGH (PERCENT)	MEDIUM (PERCENT)	LOW (PERCENT)	NONE (PERCENT)	YES (PERCENT)	NO (PERCENT)
ADP ONSITE SERVICES	22%	16%	24%	38%	62%	38%
GEISCO MARKLINK	7%	19%	21%	53%	43%	57%
NCSS 3200	12%	7%	36%	45%	50%	50%

NUMBER OF RESPONDENTS = 58 (98%)

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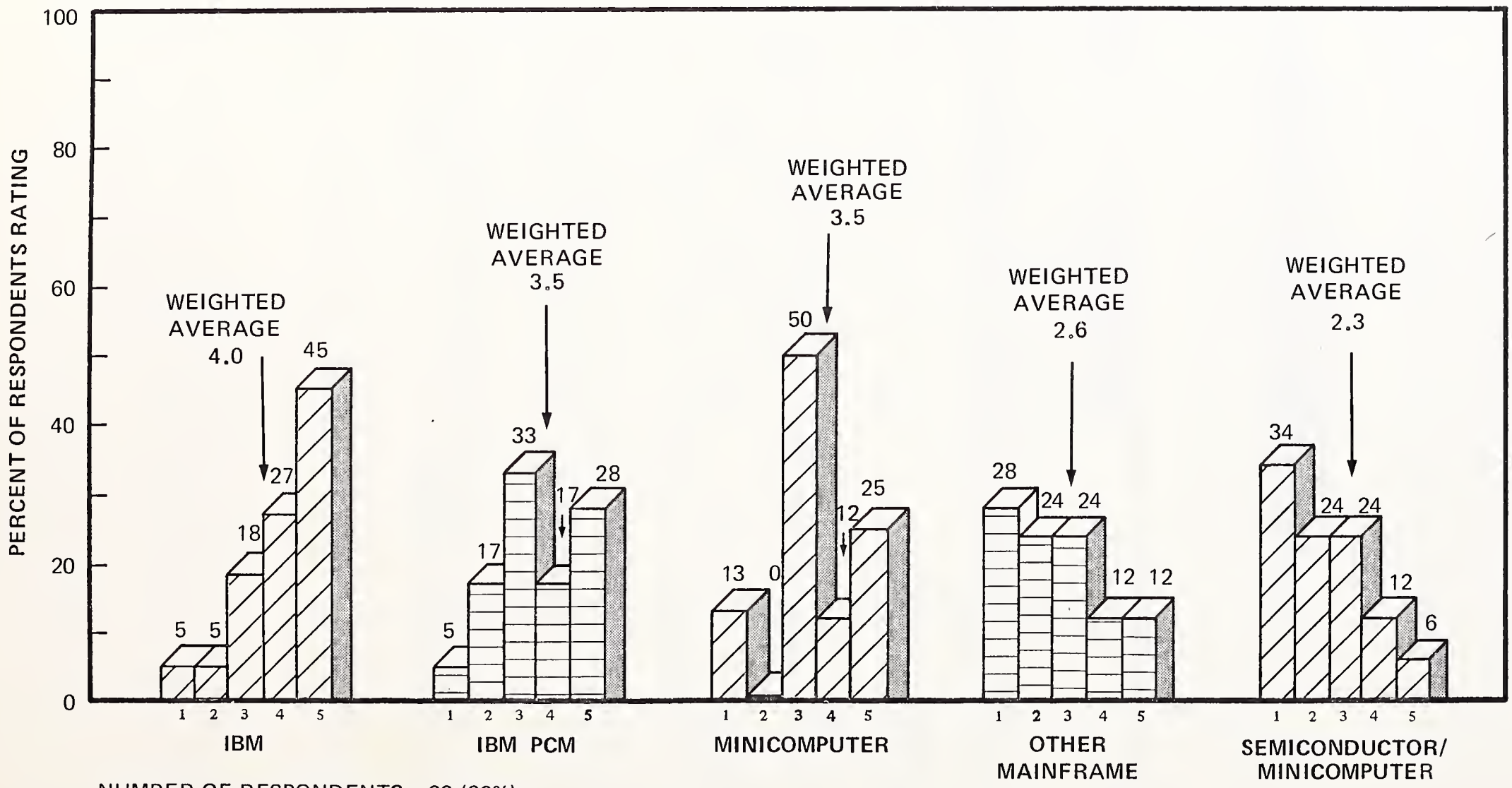
EXHIBIT IX-4

END USERS' RATINGS OF VENDORS AS SOURCES OF COMPUTERS FOR USHS SYSTEMS



NUMBER OF RESPONDENTS = 22 (69%)
NOTE: RATED ON A SCALE WHERE 1 = LEAST IMPORTANT AND 5 = MOST IMPORTANT

- The real choice is decided by issues such as:

  . Reliability.

  . Maintainability.

  . Compatibility.

- Of the respondents, 27% of end users felt that an IBM PCM was acceptable while only 6% felt that USHS must be based on IBM computers. The remainder were unconcerned.

- Most EDP managers (82%) did not feel that their decision to install USHS would be dependent on IBM as the vendor.

  - The 18% of those who preferred IBM indicated compatibility with their in-house systems was essential.

  - IBM as a USHS vendor would have the greatest effect on the plans of EDP managers of large companies. Thirty-three percent of EDP managers in companies over $1 billion in revenue said that it would change their plans, while companies of less than $100 million felt it would make no difference. The effect on EDP managers' plans for USHS if IBM were the vendor is shown in Exhibit IX-5.

- EDP managers felt that end users have considerably less autonomy to select their own computers, at any level of expenditure, than end users themselves did. Expenditure level at which the end user can select computer service or equipment are shown in Exhibit IX-6.

  - If the EDP manager's view is accepted as closer to what exists, since they generally control the selection process, 52% of end users cannot select their own equipment or services at all, and another 27% are limited to selection under $10,000.

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EXHIBIT IX-5

PLANS FOR USHS IF IBM WERE THE VENDOR
AS REPORTED BY EDP MANAGERS

EFFECT	SIZE OF COMPANY BY SALES OR REVENUE			
	SMALL < $100 MILLION (PERCENT OF RESPONDENTS)	MEDIUM $100-999M (PERCENT OF RESPONDENTS)	LARGE ⩾ $1 BILLION (PERCENT OF RESPONDENTS)	TOTAL (PERCENT OF RESPONDENTS)
MATERIAL EFFECT	—	15%	33%	18%
NO EFFECT	100%	85	67	82
PORTION OF REPSONDENTS	16%	53%	31%	100%

NUMBER OF RESPONDENTS = 49 (83%)

EXHIBIT IX-6

EXPENDITURE LEVEL AT WHICH END USERS
CAN SELECT COMPUTER SERVICES OR EQUIPMENT
AS REPORTED BY RESPONDENTS

EXPENDITURE LEVEL	REPORTED BY:	
	END USER (PERCENT)	EDP MANAGER (PERCENT)
< $10,000	31%	22%
$10,000- 25,000	8	4
$25,000-100,000	10	7
$100,000- 500,000	8	9
$500,000-1 MILLION	—	4
> $1 MILLION	3	2
NOT AT ALL	40	52
TOTAL	100%	100%

NUMBER OF RESPONDENTS:
END USER = 39 (72%)
EDP MANAGER = 55 (93%)

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- Small companies of $100 million in revenues accounted for 60% of the end users that had no selection authority at all.

- Among the companies interviewed, the procurement decision process is taking an average of five months, ranging up to 24 months, from initiation to final decision. It varies considerably with the size of the system. The time for the procurement decision process, as reported by EDP managers, is shown in Exhibit IX-7.

- The decision process is taking longer and getting more complex in most cases because:

  - Large procurements are being scrutinized more closely by management due to tighter economic conditions.

  - Users are getting more involved, leading to further analysis regarding alternatives.

  - Corporate management is becoming more sophisticated in computer procurement, questioning recommendations in greater depth.

  - Of the EDP manager respondents, 72% felt that the procurement decision process was getting longer and more complex.

- Over 80% of the final decisions for computer procurement are made by corporate management. Management looks at the procurement as a capital acquisition, generally not delegating authority to the end user or EDP manager.

  - Typically, the final decision is reserved for the president, the executive management committee, or chief financial officer.

  - Final authority for approving computer equipment or services procurement is shown in Exhibit IX-8.

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EXHIBIT IX-7

PROCUREMENT LEAD TIME BY SIZE OF SYSTEM
FOR COMPUTER SERVICES OR EQUIPMENT
AS REPORTED BY EDP MANAGERS

SIZE OF SYSTEM	PROCUREMENT AVERAGE LEAD TIME IN MONTHS
LARGE (> $500,000)	7
MEDIUM ($100,000-500,000)	5
SMALL (< $100,000)	4

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EXHIBIT IX-8

FINAL AUTHORITY FOR APPROVING COMPUTER EQUIPMENT OR SERVICES PROCUREMENT AS REPORTED BY END USERS

AUTHORITY	PERCENT OF RESPONDENTS
CHIEF EXECUTIVE OFFICER	15%
CORPORATE MANAGEMENT GROUP	29
CHIEF FINANCIAL OFFICER	26
CORPORATE DATA PROCESSING OFFICER	14
DATA PROCESSING STEERING COMMITTEE	8
EDP MANAGER	6
END USER	2
TOTAL	100%

NUMBER OF RESPONDENTS = 52 (95%)

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- Eighty percent of the EDP managers interviewed felt that computer purchasing was becoming more centralized.

  - This is further indication of management control over procurement as systems become larger and more complex.

- Computer procurement will continue to be controlled by corporate management. There is little indication that it will be delegated.

- End users are getting more responsibility for running and developing their own applications. There will be smaller systems in user areas interconnected with networks.

4. USHS PROCUREMENT

- Preferred procurement methods of USHS are shown in Exhibit IV-9.

  - Sixty-eight percent of end user respondents preferred that USHS prices be unbundled. Some reasons stated by end users are:

    . "So that applications can be budgeted separately."

    . "Want to be able to purchase software."

    . "Want to select their own software."

    . "Bundling can be cheaper but you don't get the service."

    . "Most software would be custom developed."

    . "Meet their own software development needs."

    . "Must be able to track costs."

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EXHIBIT IX-9

PREFERENCES FOR PRICING OPTIONS
FOR PROCUREMENT OF USHS
AS REPORTED BY RESPONDENTS

EQUIPMENT OR SOFTWARE PRICING OPTIONS	PERCENT OF RESPONDENTS	
	END USER	EDP MANAGER
• USHS COSTS:		
– BUNDLED	32	–
– UNBUNDLED	68	–
• USHS EQUIPMENT:		
– PURCHASE	45	–
– LEASE	42	–
– RENTAL	13	–
• USHS SOFTWARE:		
– LICENSE	50	29
– PURCHASE	50	55
– USAGE	–	16

NUMBER OF RESPONDENTS = 45 (83%)

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- End user preferences for lease/purchase of equipment were largely determined by corporate policy.

- Seventy-six percent of EDP managers reported usage charges were acceptable for particular software products subject to royalty arrangements.

- Fourty-three percent of EDP managers would include USHS installations in current or future plans.

  - Respondents generally had limited knowledge of USHS. Their attitudes can be influenced in a positive direction as they learn more about USHS. INPUT believes that the above response is favorable for USHS vendors.

- The projected timeframe for those EDP managers planning to use USHS are:

  - Fifty percent plan to do so in 1980.

  - Exhibit IX-10 shows the projected timeframe for including USHS in EDP planning.

  - USHS vendors should direct their marketing efforts to both EDP managers and end users as soon as possible.

B. ALTERNATE MARKETING STRATEGIES

1. NCSS AND ADP STRATEGIES CONTRASTED

- NCSS and ADP are both successfully selling USHS products into the utility service segment of the RCS market. Their marketing approaches are more marked by their differences than by their similarities. ADP and NCSS both seek to respond to present customers' feelings that total RCS costs are not only too high, but are also highly variable and unpredictable.

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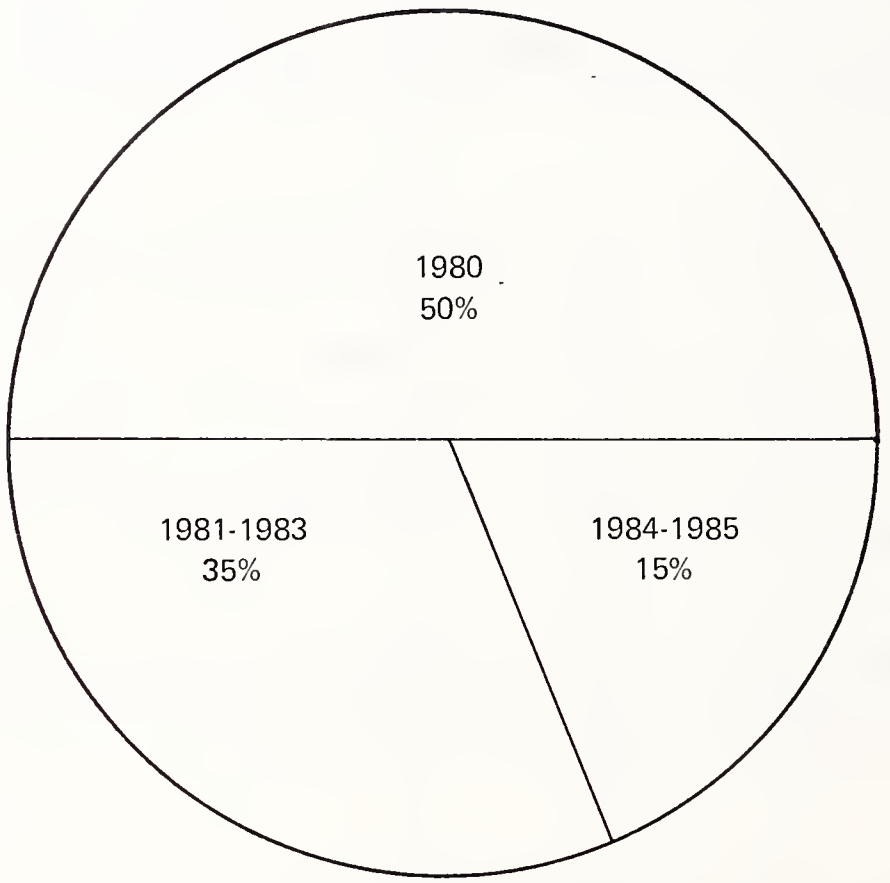
EXHIBIT IX-10

PROJECTED TIMEFRAME FOR EDP MANAGERS
INCLUDING USHS IN THEIR PLANS



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- The major similarities are:

  . Significant initial cost savings to their customers enabling ADP and NCSS to meet the competitive threat of minicomputer companies.

  . Use of USHS market entry as a means of participating in the future DDP market.

  . Reliable and efficient software availability.

- The major difference is in delivery approach.

  - NCSS departs from RCS tradition by offering a complete standalone, IBM compatible, computer system unbundled from service.

  - ADP strategy resembles much more closely that of traditional RCS offerings, with the computer bundled with network services and offered under a long-term (five-year) service contract.

2. NCSS MARKET STRATEGY

- NCSS USHS strategy is to build a separate computer division that is a complete computer vendor, selling and maintaining standalone computers. The computers can tie to the network or in-house host for timesharing at the option of the customer.

- Although the network may not be vital to the initial sale, the ultimate strategy is aimed at the DDP market where networking is essential.

- Product strategy is aimed at replacement of IBM 370 based machines, and in offering IBM compatibility.

- The NCSS 3200 is offered for purchase only.

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- Customers buy the machine for $200,000 to $300,000 and take over operational control.

- The NCSS 3200 installations can be conversions of RCS customers, new users, or IBM 370 replacements.

- The quality and reliability of NCSS software packages and software maintenance are important to the strategy, particularly the DBMS, NOMAD.

- Use of the network for application development check-out before the 3200 is delivered on-site allows for a smooth transition, and later for backup and maintenance.

- Their market strategy does not generally bring NCSS into direct competition with other RCS vendors such as ADP but rather into competition with vendors offering minicomputers like DEC, Hewlett-Packard, Prime, and IBM.

- In summary, the NCSS strategy is to compete directly with the vendors offering minicomputers, with a USHS that appears to be well suited for DDP.

3. ADP MARKET STRATEGY

- ADP USHS market strategy is to stay more closely with RCS tradition, offering a modified DEC 2020 on-site, bundled with the network under a long-term service contract.

- Price is a major part of the strategy. The ADP/ONSITE allows cost reduction averaging 40%, ranging to 60%.

  - For the present, ADP tries to offset customers' revenue reduction by bidding to consolidate multiple users under an ADP "umbrella" contract allowing ADP to gain business previously held by other vendors.

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- Revenue reduction is further offset by offering additional services to more users.

- Between consolidation of vendors and sale of additional services, lost revenues can generally be made up within two years.

- However, in the eyes of the customer, the ADP/ONSITE approach puts a ceiling on timesharing costs.

- As with NCSS, the ADP software packages and software maintenance are important.

- However, one of the problems ADP encounters lies in the difficulty of tying DEC systems into the user's host computer (usually IBM) because of compatibility problems.

- Customers regard tying to the in-house mainframe to be important.

- ADP stresses maintenance and reliability with good performance, having very detailed records to prove it.

- Use of the network for applications development and check-out before delivery is important for smooth transition and for later backup.

- Long-term ADP strategy is to use USHS as a first step toward networking and DDP.

4. GEISCO MARKET STRATEGY

- The GE MARKLINK system is differentiated from other USHS offerings by the magnitude of its market potential. It was one of the focal points of this study.

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- The 800 terminal system for the GE Supply Company, "Distributed Computer Processing for Warehouse Operations," runs into millions of dollars for equipment costs alone.

- The aim is to supply a complete turnkey system.

- Although MARKLINK fits the definition of USHS, the GE strategy is to sell MARKLINK as a total DDP system through the MARK III network to the three GE supercenters.

  - MARKLINK marketing stresses that it offers a total solution to DDP now, with all components available from a single supplier.

- Cost effectiveness is key to market penetration.

  - Prices for MARKLINK terminals are about one-tenth of those of ADP/NCSS computers.

  - Applications for MARKLINK, such as inventory control, lend themselves to large cost savings, resulting in cost effective systems.

  - The GE Supply Company expects that profitability will be improved by the MARKLINK system for the following reasons:

    . Computerized pricing.

    . More economical buying practices.

    . Inventory reduction.

    . Minimized billing lag.

  - Transaction processing is required to achieve cost effectiveness. GEISCO feels that operating costs are about one-third of what they would

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be for straight timesharing. The plan is for local processing and efficient use of central processors.

- MARKLINK can expand into new markets and does not compete directly with other USHS vendors.

  - One respondent remarked that: "If a customer is right for MARKLINK they are automatically not a customer of ADP."

  - GE strategy is to differentiate its service by selling from the strength of its massive network and supercenters.

- Sales and development lead time are long for systems like the GE Supply Company systems.

  - It took 18 months to bring this system to first beneficial use and another 12 months to complete it.

- Once installed, the MARKLINK system is designed to have a long life.

  - GE feels that the system will have a 150 month life cycle.

- GE applications software is important. It allows customers to tailor a system to specific objectives.

C. MARKET PENETRATION - ADP, NCSS, GEISCO

1. ADP AND NCSS MARKET PENETRATION

- The ADP ONSITE and the NCSS 3200, both announced near the end of the first quarter of 1978, are comparable systems.

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- The USHS market was adversely affected by IBM's announcement of the 4300 in January 1979, but recovered later when 4300 delivery dates were extended.

- Despite the temporary setback, both ADP and NCSS experienced a successful market year for the ONSITE and 3200 products.

  - The results for both companies were nearly alike despite the very different strategies.

- INPUT estimates that the number of installations of ADP ONSITE equipment at the end of 1979 was 29.

  - These installations provide a lease base of $6 million per year.

  - ADP USHS sales in 1979 are estimated to be $3.5 million.

- INPUT estimates there were 26 installations of the NCSS 3200 equipment at the end of 1979.

  - At an estimated average sales price of $250,000, this represents $7.5 million in sales, plus maintenance and network charges.

  - NCSS sales for 1979 were $5.7 million.

- NCSS 3200 marketing feels that NCSS is successfully building a customer base with a product that is well suited for the DDP market.

2. GEISCO MARKET PENETRATION

- The GEISCO MARKLINK system previously described has a significant market potential for expanding into new areas.

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- At the present time, the GE Supply Company is the only major installation of MARKLINK.

- GEISCO is expected to expand USHS market penetration rapidly in 1980 in both the utility services and industry specialty segments of the RCS market.

- The MARKLINK product offering was expanded in December of 1979 and, correspondingly, MARKLINK marketing efforts were intensified.

- If MARKLINK lives up to its expected potential of offering USHS to small users, and other vendors follow suit, RCS vendors offering this type of USHS system can expand both the total RCS market in the 1980s, and their market share.

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APPENDIX A: DATA BASE

EXHIBIT A-1

USHS INTERVIEW PLAN

INTERVIEW TYPE	RESPONDENTS		
	ON-SITE	TELEPHONE	TOTAL
COMPANIES INTERVIEWED	40	59	99
RESPONDENTS			
END USER	40	32	72
EDP MANAGER	35	24	59
FINANCIAL EXECUTIVE	21	—	21
TOTAL INTERVIEWS	96	56	152

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EXHIBIT A-2

USER SITE HARDWARE SERVICES (USHS) MARKET IN THE U.S., 1980-1984

MODE	TYPE	$ MILLION/ PERCENT OF RCS	YEAR					AAGR 1980-1984 (PERCENT)
			1980	1981	1982	1983	1984	
USER SITE HARDWARE SERVICES	GENERAL BUSINESS	$ MILLION	–	$ 6	$ 20	$ 50	$ 80	140%
		PERCENT	–	1%	3%	5%	7%	
	SCIENTIFIC AND ENGINEERING	$ MILLION	–	4	15	30	50	119
		PERCENT	–	1	3	5	7	
	INDUSTRY SPECIALTY	$ MILLION	100	170	285	470	660	46
		PERCENT	5	7	10	13	15	
	UTILITY	$ MILLION	20	50	110	200	270	68
		PERCENT	2	5	8	13	15	
	TOTAL	$ MILLION	$ 120	$ 230	$ 430	$ 750	$ 1,060	55%
		PERCENT	3%	5%	8%	11%	13%	

▨ UTILITY PROCESSING SERVICES; PORTION ANALYSED BY THIS STUDY

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EXHIBIT A-3

DATA BASE

RCS MARKET IN THE UNITED STATES, 1980-1984

MODE	TYPE	RCS REVENUES					AAGR (PERCENT)
		1980 ($ MILLION)	1981 ($ MILLION)	1982 ($ MILLION)	1983 ($ MILLION)	1984 ($ MILLION)	
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 580	$ 690	$ 890	$ 1,000	$ 1,200	20%
	SCIENTIFIC AND ENGINEERING	390	460	540	630	730	16
	INDUSTRY SPECIALTY	2,000	2,400	2,900	3,600	4,400	22
	UTILITY	900	1,100	1,300	1,600	1,800	20
	TOTAL*	$ 3,900	$ 4,600	$ 5,600	$ 6,800	$ 8,100	21%

*ROUNDED

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APPENDIX B: DEFINITIONS

APPENDIX B: DEFINITIONS

BATCH SERVICES This includes data processing performed at vendors' sites of user programs and/or data which are physically transported (as opposed to electronically by telecommunications media) to and/or from those sites. Data entry and data output services, such as keypunching and COM processing, are also included. Batch services include those expenditures by users which take their data to a vendor site which has a terminal connected to a remote computer used for the actual processing.

BYTE Approximately equivalent to the storage required for one alphanumeric character (i.e., one letter of number).

CENTRAL PROCESSING UNIT (CPU) The arithmetic and control portion of a computer; i.e., the circuits controlling the interpretation and execution of computer instructions.

COMPUTER SERVICES Those services provided by vendors which perform data processing functions using vendor computers, or assist users to perform such functions on their own computers.

DATA BASE MANAGEMENT SYSTEM A generalized computer program which handles the mechanics of storing, updating and accessing data for multiple applications. This definition does not include file management systems which are designed primarily for single applications (e.g., MARK IV, EASTRIEVE).

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- DISTRIBUTED DATA PROCESSING (DDP)

  - INPUT was unable to find a consensus among both users and vendors as to a definition of DDP. It appears to be a concept that is uniquely structured to satisfy individual vendor and user requirements.

  - Nonetheless, as a result of extensive work in this area, INPUT offers the following hybrid definition:

    "Distributed processing is the deployment of programmable intelligence in order to perform data processing functions where they can be accomplished most effectively, through the electronic interconnection of computers and terminals, arranged in a telecommunications network adapted to the user's characteristics."

ELECTRONIC MAIL A range of services which transmit documents consisting of text and graphic material to be read by a person - the quality of the document will be high.

END USER May buy a system from the hardware supplier(s) and do its own programming, interfacing and installation. Alternately, it may buy a turnkey system from a systems house or hardware integrator.

EQUIPMENT COMPATIBILITY A service which allows information to be interchanged among equipment from different manufacturers, and among equipment of different types - terminals, facsimiles, and mainframes are all included.

FACILITIES MANAGEMENT (FM) (Also referred to as "Resource Management" or "Systems Management.") The management of all or part of a user's data processing functions under a long-term contract (not less than one year). To qualify as FM, the contractor must directly plan and control as well as operate the facility provided to the user on-site, through communications lines, or mixed mode. Simply providing resources, even though under a long-term contract and/or for all of a users' processing needs, does not necessarily qualify as FM.

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GENERAL PURPOSE COMPUTER SYSTEMS A computer designed to handle a wide variety of problems; includes machine room peripherals, systems software, and small business systems.

INFORMATION PROCESSING Data processing as a whole including use of business and scientific computers.

INSTALLED BASE Cumulative number or value (cost when new) of computers in use.

MEAN TIME TO RESPOND The elapsed time between the user placement of a service call and the arrival at the user's location of a field engineer.

MEAN TIME TO REPAIR The elapsed time from the arrival of the field engineer on the user's site until the device is repaired and returned to the user for his utilization.

MEAN TIME BETWEEN FAILURES (MTBF) The elapsed time between hard failures on a device or a system.

MESSAGE A communication intended to be read by a person. The quality of the received document does not have to be high - only readable. Graphic material is not included.

MICROCOMPUTER Combines all of the CPU, memory and peripheral functions of a computer on a chip of silicon. It may be sold in an integrated circuit package or with the addition of more memory and peripheral circuits packaged on a board of a console. Eight bit computer on a chip used as a component.

MINICOMPUTER Usually a 12 to 16 bit computer which is provided with limited applications software and support and represents a portion of a complete, large system.

MULTIPLE DISTRIBUTION A message is transmitted to many locations either pre-selected or listed at time of transmission.

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PERIPHERALS Includes all input, output, and storage devices, other than main memory, which are locally connected to the main processor and are not generally included in other categories, such as terminals.

PROCESSING SERVICES Processing services encompass FM, RCS, and batch services. They are categorized by type of service, as distinguised from mode of service, bought by users as follows:

GENERAL BUSINESS services are processing services for applications which are common to users across industry categories. Software is provided by the vendor; this can be a complete package, such as a payroll package, or an application "tool," such as a budgeting model, where a user provides much of the customizing of the finished product it uses. General business processing is often repetitive and transaction oriented.

SCIENTIFIC AND ENGINEERING services are the processing of scientific and engineering problems for users across industries. The problems usually involve the solution of mathematical equations. Processing is generally problem solving and is non-repetitive, except in the sense that the same packages or "tools" are used to address different, but similar problems.

INDUSTRY SPECIALTY services provide processing for particular functions or problems unique to an industry or industry group. The software is provided by the vendor either as a complete package or as an application "tool" which the user employs to produce its unique solution. Specialty applications can be either business or scientific in orientation; data base services where the vendor supplies the data base and controls access to it (although it may be owned by a third party) are also included under this category. Examples of industry specialty applications are: seismic data processing, numerically-controlled machine tool software development, and demand deposit accounting.

UTILITY services are those where the vendor provides access to a computer and/or communications network with basic software that enables any user to

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develop its own problem solution or processing system. These basic tools include terminal handling software, sorts, language compilers, data base management systems, information retrieval software, scientific library routines, and other systems software.

DBMS REVENUES include all revenues directly relating to the processing and storing of data which interacts with the data base management system, as well as programming and training charges related to DBMS application development and usage. Not included as DBMS revenues are pull-through revenues, such as processing charges for the use of other software to manipulate data extracted from the data base management system, or revenue obtained from operating a data base management system purchased by one customer and run exclusively for him.

DATA BASE MANAGEMENT SYSTEM SERVICE provides to a user, for a fee, a data base management system through a Remote Computing Service (RCS).

PROPRIETARY DBMS is a DBMS developed by the RCS vendor or acquired from an external group not actively marketing it as a software product.

THIRD PARTY DBMS is a DBMS developed by someone other than the RCS vendor and marketed by that of another organization as a software product.

PROPRIETARY DBMS VENDOR is one which has a majority of its DBMS revenues from Proprietary DBMS.

THIRD PARTY DBMS VENDOR obtains a majority of its DBMS revenues from Third Party DBMS

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PROFESSIONAL SERVICES Management consulting related to EDP, systems consulting, systems design and programming, and other professional services are included in this category. Services can be provided on a basis of: "Time and Materials," whereby the user pays for the time used of an individual on a daily or other fixed rate, or "Fixed Price," where the user pays a fixed fee for a specific task or series of tasks.

REMOTE COMPUTING SERVICES (RCS) Provision of data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer. There are three sub-modes of RCS:

INTERACTIVE (timesharing) is characterized by interaction of the user with the system, primarily for problem solving timesharing, but also for data entry and transaction processing; the user is "on-line" to the program/files.

REMOTE BATCH is where the user hands over control of a job to the vendor's computer which schedules job execution according to priorities and resource requirements.

DATA BASE is characterized by the retrieval of information from a vendor-maintained data base. This may be owned by the vendor or a third pary.

REMOTE COMPUTING SERVICES (RCS) REVENUES are those revenues obtained by the provision of data processing to a user by means of a terminal at the user's site(s). The terminal is connected by a data communications network to the vendor's central computer. Not included as RCS revenues are sales to captive companies (i.e., companies which are part of the same corporate entity as the vendor).

SIC Standard Industrial Classification. Developed for use in classifying establishments by type of activity to facilitate and promote uniformity, as well as comparability, in the collection and presentation of statistical data on economic activities.

SMALL BUSINESS COMPUTER For the purpose of this study, it is a system which is built around a Central Processing Unit (CPU), and which has the ability to utilize at

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least 20M bytes of disk capacity, to provide multiple CRT work stations, and to offer business-oriented system software support. Minicomputer based system used for general business data processing and for specialized industry oriented business applications.

SOFTWARE Computer programs.

SOFTWARE PRODUCTS This category is for users' purchases of systems and applications packages for use on in-house computer systems. The figures quoted include lease and purchase expenditures, as well as fees for work performed by the vendor to implement and maintain the package at the users' sites. Fees for work performed by organizations other than the package vendor are counted in professional services. There are two sub-categories:

> SYSTEMS PACKAGES OR SYSTEMS SOFTWARE are operating systems, utilities, and languages routines that enable the computer/communications system to perform basic functions. This software is provided by the mainframe manufacturers with their hardware; other vendors provide improved versions of this and special-purpose routines. This classification includes compilers, data base management software, diagnostic software, and sorts.
>
> APPLICATIONS PACKAGES OR APPLICATIONS SOFTWARE are software which perform processing to serve user functions. They consist of general purpose packages, such as accounting and inventory control, and special purpose packages, such as personal trust, airline scheduling, and demand deposit accounting.

SYSTEMS ANALYST Individual who analyzes problems to be converted to a programmable form for application to computer systems.

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SYSTEMS HOUSE Integrates hardware and software into a total turnkey system to satisfy the data processing requirements of the end user. It may also develop system software products for license to end users.

- USER SITE HARDWARE SERVICES (USHS)

  - Place intelligent hardware (i.e., terminals, microcomputers, minicomputers) at the user's site or at the vendor's site dedicated to the user.

  - Offer significant RCS vendor-supplied software for execution on vendor-supplied intelligent hardware.

  - Offer user access to the RCS vendor's communications network.

  - Offer user access through the vendor's RCS networks to the vendor's mainframes or other intelligent hardware supplied to the user by the vendor.

VALUE ADDED NETWORK (VAN SERVICES) are the regulated communications network services that offer more than simple point-to-point connections.

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APPENDIX C: RELATED INPUT REPORTS

APPENDIX C: RELATED INPUT REPORTS

Title	Report Number	Publication Date	Price
Opportunities In User Site Hardware Services	11	February 1979	$2,000
Market Analysis Service 1979 Annual Report	--	December 1979	$4,000
Turnkey Systems Opportunities, 1979-1984	17	January 1980	$2,000

Contact Walter P. Smith, Vice President, Sales (415) 493-1600

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APPENDIX D: QUESTIONNAIRES

USER SITE HARDWARE SERVICES - EDP MANAGER

USER SITE HARDWARE SERVICES (USHS) - Provision at a customer's site of a computer or a programmable terminal as part of a network-based service.

- Generally supplied by a remote computing services vendor.
- May include vendor supplied software.
- May provide access to a remote data base.
- May or may not interface with a host computer or other organization.

1. How many computers does your company presently have installed, and how many do you plan to add in the following timeframe?

Size of System (Value)	Installed Now	1979-1981	1982-1985
Large (>$0.5 Million)	(9) _____	(12) _____	(15) _____
Medium (100K-$500K)	(10) _____	(13) _____	(16) _____
Small (<$100K)	(11) _____	(14) _____	(17) _____

2. For medium and small systems:

   a. What proportion will be bought directly by user departments?

	1979-1981	1982-1985
Medium	(18) _____ %	(20) _____ %
Small	(19) _____ %	(21) _____ %

   b. For what proportion will purchase recommendations come from user departments?

	1979-1981	1982-1985
Medium	(22) _____ %	(24) _____ %
Small	(23) _____ %	(25) _____ %

3. Which of the following will cause you to increase your computer/ communications capability?

(26) 1. New Applications - User Site

2. New Facility/Plants/Locations

3. Off-load Main CPU

4. Add Network Capability

5. Other _____
(specify)

4. What are the key on-line applications you will develop between now and 1985?

Application Name	Year Required To Be Active	Number of Geographical Sites Covered		Method of Processing (circle all that apply)			
		Domestic	Inter-national	DDP	Inter-Active	Remote Batch	
(27)	(28)	(29)	(30)	1	2	3	(31)
(32)	(33)	(34)	(35)	1	2	3	(36)
(37)	(38)	(39)	(40)	1	2	3	(41)
(42)	(43)	(44)	(45)	1	2	3	(46)
				1	2	3	
				1	2	3	
				1	2	3	
				1	2	3	

5. How will you serve remote locations?

Type of Service	1980	1985
- Batch	(47) _____ %	(53) _____ %
- Dumb Terminals	(48) _____ %	(54) _____ %
- Intelligent Terminals	(49) _____ %	(55) _____ %
- Distributed Processors in Network	(50) _____ %	(56) _____ %
- Decentralized Standalone Processors:	(51) _____ %	(57) _____ %
- Under EDP Department Control	(52) _____ %	(58) _____ %
- Under User Department Control	_____ %	_____ %
Total	100 %	100 %

6. Please rate the importance of the availability of a network with the purchase of a computer:

a. Now 1. High 2. Medium 3. Low (59)

Comments: _____

_____

_____

b. 1981 1. High 2. Medium 3. Low (60)

Comments: _____

_____

_____

c. 1985 1. High 2. Medium 3. Low (61)

Comments: _____

_____

_____

7. When you need additional computer and communications capability, to which supplier do you consider first and why?

(62)

Circle	Supplier Name	Comments (list specific mentions)
1	IBM	
2	IBM Compatible Amdahl, Itel, etc.	
3	Other Majors CDC, Honeywell, Univac, Burroughs, etc.	
4	Minicomputer DEC, H-P, PRIME, Data General, 4 Phase, etc.	
5	Processing Services ADP, GEIS, NCSS, Informatics, Tymshare, etc.	
6	AT&T	

INF

8. Please identify management responsibilities in the procurement process. (circle all that apply)

Function	User Management		EDP Management		Financial Management		Top Management		
	Now	1985	Now	1985	Now	1985	Now	1985	
Identify Need	1	5	2	6	3	7	4	8	(63,64)
Establish Justification	1	5	2	6	3	7	4	8	(65,66)
Selects Vendor	1	5	2	6	3	7	4	8	(67,68)
Approves Vendor	1	5	2	6	3	7	4	8	(69,70)
Approves Procurement	1	5	2	6	3	7	4	8	(71,72)

9. How long does the procurement decision process take by size of system?

Large (>$500K) _____ Months (73)

Medium ($100K - $500K) _____ Months (74)

Small (<$100K) _____ Months (75)

10. Is the decision process:

1. Getting Longer
2. Getting Shorter (76)
3. Simpler
4. More Complex

Comments: _____

_____

_____

_____

11. At what expenditure level can the end user select his own service or equipment?

    1. Less than $1,000
    2. $1,000 - $10,000
    3. $10,000 - $25,000
    4. $25,000 - $100,000
    5. $100,000 - $500,000 (77)
    6. $500,000 - $1,000,000
    7. More than $1 million
    8. Not at all

12. What is the EDP departments involvement in procurement of computer services by users?

    1. None
    2. Provides technical support and review
    3. Recommend RCS vendor (78)
    4. Controls and approves procurement
    5. Other _____ (specify)

INP

13. What do you see as the level of risk (high, medium, low) related to a new or augmented EDP capability for each of the following approaches?

Method of Approach	Risk (circle one)			Comments	
	Low	Medium	High		
Centralized EDP	1	2	3		(79)
Decentralized (User Departments)	1	2	3		(80)
Distributed Data Processing (EDP Department Control)	1	2	3		(81)
Development and Operation by a Services Vendor	1	2	3		(82)
Other _____ (specify)	1	2	3		(83)

14. a. Are the end users now separating themselves from EDP?
1 Yes
2 No
(84)

b. Will they try to do so in the 1980s?
1 Yes
2 No
3 Don't Know
(85)

15. Is the trend:

a. In computer purchasing to:

1. Centralize

2. Decentralize (User Control) (86)

b. In computer operations to:

1. Centralize

2. Decentralize (User Control) (87)

Please comment on expected situation through 1985: _____

_____

_____

_____

16. On a scale of 1-5 (5 = most desirable, 1 = least desirable), please rate the following financial methods of acquisition of computers in the 1980-1985 period:

Factors	1980	1985
Lease	(88) _____	(94) _____
Purchase	(89) _____	(95) _____
Month-to-Month	(90) _____	(96) _____
Unbundled	(91) _____	(97) _____
Bundled	(92) _____	(98) _____
Transaction/Usage Priced	(93) _____	(99) _____

17. a. Do you have minicomputers at user sites? 1 Yes 2 No (100)

b. If yes, what applications are run on these computers?

_____

_____

_____

c. If yes, what percent of these applications are:

Off-loaded from host _____ % (101)

New applications _____ % (102)

Total 100 %

d. Are these computers typically linked with the host mainframe? 1 Yes 2 No (103)

Comments: _____

_____

_____

_____

18. a. Is the applications software packaged or custom?

1. Packaged _____ % (104)

2. Custom _____ % (105)

100 %

b. Does the EDP manager retain control? 1 Yes 2 No (106)

Comments: _____

_____

_____

_____

19. How many IBM 4300/8100s do you have on order?

_____ 4300 (107)

_____ 8100 (108)

20. What percent are for new needs as opposed to replacement of existing systems?

_____ % 4300 (109)

_____ % 8100 (110)

Comments: _____

_____

_____

21. a. Would you purchase other manufacturer's systems which are comparable with the 4300?
1 Yes
2 No (111)

b. If yes, why?

1. Delivery schedule
2. Price (112)
3. Prefer a non-IBM vendor
4. Other _____ (specify)

22. a. Do you provide timesharing at remote locations?
1 Yes
2 No (113)

b. If yes, is it provided by:

1. In-house timesharing
2. Remote computing service vendor (114)
3. Both

APPLICATIONS DEVELOPMENT

23. Is the pressure from users for applications development:

1. High 2. Medium 3. Low (115)

1. Increasing 2. Same 3. Decreasing (116)

24. How actively are you looking for design and programming tools and methods to assist in applications development?

1. Very Actively High Priority 2. Somewhat Actively 3. Not Looking (117)

25. How actively are you considering buying applications software products to meet some users' needs?

1. Very Actively 2. Somewhat Actively 3. Not Looking (118)

26. What is the pressure from users to buy applications software or services?

1 High
2 Medium (119)
3 None

a. How long in months is your applications development backlog?

_____ Months (120)

b. What is the change from last year? ± _____ % Increase Decrease (121,122)

c. What will be the change through next year? ± _____ % (123,124)

27. What proportion of applications development will be done by end user departments?

1980	1985
_____ % (125)	_____ % (126)

28. Please rate on a scale of 1-5 (5 = very attractive, 1 = not attractive) the attractiveness of using user site hardware services to perform the following functions:

Function	Rating
In-house timesharing, especially remote locations	(127)
Providing applications development (and operation) capability to end users	(128)
Providing applications development capability to EDP department (as programmer workbench)	(129)
For DDP applications	(130)
For standalone applications procuring at remote locations	(131)
Other: (specify)	(132)

29. Please indicate your level of knowledge of/and interest in using present USHS offerings:

Product	Level of Knowledge (circle)				Would Consider Using		Comments	
	High	Med.	Low	None	Yes	No		
ADP On-Site Services	1	2	3	(133) 4				(137)
GEIS Mark-III "R" DDP	1	2	3	(134) 4				(138)
NCSS 3200	1	2	3	(135) 4				(139)
Other _____ (specify)	1	2	3	(136) 4				(140)

30. Please indicate your receptivity to a USHS from the following vendors: (circle all that apply)

Vendor Type	Receptivity			Comments	
	H	M	L		
IBM	1	2	3		(141)
AT&T	1	2	3		(142)
Other Major Manufacturers	1	2	3		(143)
Minicomputer Manufacturers	1	2	3		(144)
Remote Computing Services Companies	1	2	3		(145)

31. The following are possible advantages of a USHS. Please rate them on a scale of 1-5 (5 = high advantage, 1 = no advantage).

Potential Advantage	Rating	Comments	
Single source of supply of hardware, software, network, and support			(146)
Available network			(147)
Remote data base			(148)
Available software			(149)
Price/performance			(150)
Speed of solution			(151)
Reliability and backup			(152)
Maintenance and support			(153)
Other _____			(154)
Other _____			

32. What do you see as possible disadvantages to a USHS?

_____

_____

_____

_____

33. How many existing, in-house small computers would you consider turning over to a USHS?

_____ Number (155)

34. a. Would you consider operating any of your current or planned applications on a USHS? 1 Yes 2 No (156)

b. If yes, what are they? Please rate their importance (high, medium, low).

Application	Importance			Current	Planned	Comments	
	H	M	L				
	1	2	3	4	5		(157,15
	1	2	3	4	5		(159,16
	1	2	3	4	5		(161,16
	1	2	3	4	5		(163,16
	1	2	3	4	5		(165,16
	1	2	3	4	5		(167,16
	1	2	3	4	5		(169,17

35. a. How many potential installations of USHS are there in your company?

_____ Number (171)

b. Which departments or functional areas in your company are potential USHS users?

_____

_____

_____

_____

36. In selecting a USHS vendor, please rate the following factors on a scale of 1-5 (5 = very important, 1 = not important).

Factor	Rating	Comments	
Systems Software			(172)
Applications Software			(173)
Network Coverage			(174)
Network Characteristics			(175)
Access to a Remote Data Base			(176)
Hardware Characteristics			(177)
Price/Performance			(178)
Maintenance and Support			(179)
Vendor's Reputation			(180)
Based on IBM Product			(181)
Other _____ (specify)			(182)
Other _____ (specify)			

37. a. Does USHS fit into your current or future plans?

1 Yes
2 No

(183)

b. If yes, within what timeframe?

1. 1980
2. 1981 - 1983
3. 1984 - 1985

(184)

38. Would your plans change if IBM was the vendor?

1 Yes
2 No

(185)

Comments: _____

_____

_____

_____

39. How would you prefer to purchase software on a USHS?

1. Lease
2. Purchase
3. Usage Pricing
4. Other _____ (specify)

(186)

40. Would you accept usage charges for particular software products because of royalty arrangements?

1 Yes
2 No

(187)

CATALOG NO. XRCS[ ][ ][ ]

END USERS

1. What are the current methods and vendors used for your data processing?

☐ In-house EDP mainframe

_____ Mainframe vendor
(name)

_____ Software package vendor

☐ In-house minicomputer at your site

_____ Minicomputer vendor
(name)

_____ Software package vendor

☐ Remote computer services vendor

_____ Vendor

2. Please identify management responsibilities in the procurement process. (circle all that apply)

Function	User Management		EDP Management		Financial Management		Top Management		
	Now	1985	Now	1985	Now	1985	Now	1985	
Identify Need	1	5	2	6	3	7	4	8	(8,9)
Establish Justification	1	5	2	6	3	7	4	8	(10,11)
Selects Vendor	1	5	2	6	3	7	4	8	(12,13)
Approves Vendor	1	5	2	6	3	7	4	8	(14,15)
Approves Procurement	1	5	2	6	3	7	4	8	(16,17)

3. How are vendors selected for the various EDP products/services that you purchase?

   1. Formal Bids
   2. Sales Presentations
   3. Referrals
   4. Other _____ (specify)

(18)

4. At what annual expenditure level can you as the end user select your own service or equipment?

   1. Less than $1,000
   2. $1,000 - $10,000
   3. $10,000 - $25,000
   4. $25,000 - $100,000
   5. $100,000 - $500,000
   6. $500,000 - $1,000,000
   7. More than $1 Million
   8. Not at all

(19)

5. Who has the final decision?

_____ (20)

6. What are your current/planned expenditures for RCS in $/month?

   $ _____ Now (21)

   $ _____ 1980 (22)

How far ahead do you formally project planned expenditures for RCS?

_____ Years (23)

7. Please list the major RCS applications you are now using, and indicate which of these are separable from the EDP department were you to do your own development:

Application	Separate from EDP

8. a. Are there other processing services that you need that are not supplied by the EDP department?

1 Yes
2 No

(24)

b. If yes, what are they? _____

_____

_____

_____

c. If yes, are these services related to access to an external data base?

1 Yes
2 No

(25)

Comments: _____

_____

_____

_____

9. Do you want to/or now do some of your own programming?

1 Yes
2 No

(26)

Comments: _____

_____

_____

_____

10. How important to you will be the availability of a network with the future purchase of a computer?

1981	1.	High	2.	Medium	3.	Low (27)
1985	1.	High	2.	Medium	3.	Low (28)

Comments: _____

_____

_____

_____

USER SITE HARDWARE SERVICES (USHS) - Provision at a user's site of a computer programmable terminal as part of a network-based service.

11. Would you consider using USHS to provide you with applications development or operation?

1 Yes
2 No

(29)

12. What current USHS vendor would you consider using or have you used? (circle all that apply)

	(30) Consider	(31) Previously A Customer
ADP	a	b
NCSS	c	d
GEIS	e	f
Informatics	g	h
Other _____	i	j

_____
(specify)

13. What applications would you consider operating on a USHS:

a.

b.

c.

d.

e.

f.

g.

h.

14. Would USHS interface with:

a. In-house systems

1 Yes
2 No (32)
3 Don't Know

Comments: _____

_____

_____

_____

b. Other company organizations

1 Yes
2 No (33)
3 Don't Know

Comments: _____

_____

_____

_____

c. Other services vendors

1 Yes
2 No (34)
3 Don't Know

Comments: _____

_____

_____

_____

d. External data base (importance of)

1 Yes
2 No (35)
3 Don't Know

_____

_____

_____

_____

15. In your company, to what extent does the desire to off-load the host influence considerations of USHS? (circle one)

1 Very Important
2 Not Important (36)
3 Don't Know

16. What are your concerns, if any, about the manufacturer of the USHS computer? (circle one)

1 None

2 Must be IBM (37)

3 Other _____ (specify)

17. Please rate the following vendors as sources of computers for USHS. Use a 1-5 scale (5 = most desirable, 1 = least desirable).

	Rating	Vendor/Vendor Type	Preferred Vendor
(38)		IBM	Not Applicable
(39)		IBM PCM	
(40)		Other Mainframe Vendor - Burroughs, Univac, Honeywell, CDC	
(41)		Minicomputer - DEC, H-P, Prime	
(42)		Semiconductor/Minicomputer - TI, National Semiconductor	
(43)		Other: (specify)	

18. Please rate the importance of the following as reasons for buying USHS. Use a 1-5 scale (5 = very important, 1 = not important).

(44) _____ Lack of internal capacity to develop applications

(45) _____ Lack of internal capacity to operate applications

(46) _____ Inability to provide equivalent service internally

(47) _____ Cost effectiveness of USHS

(48) _____ Ability to decentralize yet retain control

(49) _____ Proven timesharing/problem solving software

(50) _____ Communications/network management support

(51) _____ Proprietary software

(52) _____ Other _____
(specify)

19. Please rate the following features of USHS. Use a 1-5 scale (5 = very important, 1 = not important).

(53) _____ Ability to interface with in-house system through the network

(54) _____ Ability to do applications development at user site

(55) _____ Ability for user to purchase and add packaged software to USHS from third parties

(56) _____ Ability to interface with other vendors from the terminal

(57) _____ Ability to consolidate outside "timesharing"

(58) _____ Network capability to support multiple remote points

(59) _____ Ability to accurately project costs and budget accordingly

(60) _____ Reduction in costs of existing processing.

20. a. How important is the ability to update the master file, on line and in real time, to your operations?

1 Very Important
2 Important (61)
3 Not Important

b. Why? _____

_____

_____

_____

21. Given that you have a USHS with networking capability, what other types of data processing would you convert to USHS in $/month?

(62) $ _____ In-House

(63) $ _____ External RCS (Timesharing)

From whom? _____ (64)

(65) $ _____ Other

22. a. Would you prefer that USHS costs be bundled or unbundled?

1 Bundled (66)
2 Unbundled

b. Why? _____

_____

_____

_____

c. For USHS equipment would you prefer:

1 Purchase
2 Lease (67)
3 Rental

Why? _____

_____

_____

_____

22. d. For USHS software would you prefer:

1 License
2 Purchase (68)

Why? _____

_____

_____

_____

23. a. Within what timeframe might you make a commitment to/or decision about USHS? (circle one)

1 Less Than 1 Year
2 1 Year
3 2-3 Years
4 3-5 Years (69)

b. At what expenditure level? _____ $/Month (70)

24. What other end users in your company represent a potential for USHS?

_____

_____

_____

_____

25. Do you have any additional comments on how your computer/communication requirements may be met in the 1980s?

_____

_____

_____

_____

_____

_____

EXISTING/PLANNED USERS OF USHS
(For "Planned Users of USHS" adjust questions accordingly)

1. For the other types of data processing that you have converted to USHS what expenditures do they represent in $/month and percent of previous expenditures?

   $ _____ /mo. (8) _____ % In-House (11)

   $ _____ /mo. (9) _____ % External RCS (Timesharing) (12)

   From whom? _____ (13)

   $ _____ /mo. (10) _____ % Other (14)

2. What are your current/planned monthly expenditures on USHS?

   $ _____ Now (15)

   $ _____ 1980 (16)

   How far ahead do you formally project planned expenditures for RCS?

   _____ Years (17)

3. Which service do you use? Check if you previously used the vendor for services other than USHS.

	(18)	(19) Previous Customer	
ADP	☐	☐	
NCSS	☐	☐	
GEIS	☐	☐	
Informatics	☐	☐	
Other	☐	☐	Name _____

4. What are your current/planned expenditures for RCS excluding USHS expenditures in $/month?

$ _____ Now (20)

$ _____ 1980 (21)

5. Please rate the importance of the following as reasons for buying USHS. Use a 1-5 scale (5 = very important, 1 = not important)

(22) _____ Lack of internal capacity to develop applications

(23) _____ Lack of internal capacity to operate applications

(24) _____ Inability to provide equivalent service internally

(25) _____ Cost effectiveness of USHS

(26) _____ Ability to decentralize yet retain control

(27) _____ Proven timesharing/problem solving software

(28) _____ Other _____
(specify)

_____ _____

_____ _____

6. What roles did the size and type of programs to be run, and the response requirements play in the buying process?

	Importance In Buying Process (circle one each)			
	High	Medium	Low	
Size of Programs	1	2	3	(29)
Type of Programs	1	2	3	(30)
Response Requirements	1	2	3	(31)
Other _____ (specify)	1	2	3	(32)

7. a. Please give percent use of USHS systems for the following functions:

(33)	_____	Applications development
(34)	_____	Transaction processing
(35)	_____	Personal computing (timesharing/problem solving)
(36)	_____	Data entry
(37)	_____	Office Automation
(38)	_____	Other
	100%	Total

7. b. Please describe the major application(s) being performed by USHS*:

Application	Program Core Requirements	Criticality			Number of USHS Sites Processing It	Previous Method of Processing				Check if Share Data Base with Host
		H	M	L		New	RCS	Int'l. EDP	Other	
(39)			(40)		(41)	(42)	(43)	(44)	(45)	(46)
(47)			(48)		(49)	(50)	(51)	(52)	(53)	(54)

*If more than 2, get aggregate figures, not detail.

8. Is the applications software down loaded or retained locally?

1 Down Loaded
2 Retained Locally (55)

9. Who is doing the applications development?

1. End User
2. EDP Department
3. RCS Vendor (56)
4. Other _____ (specify)

10. Please describe your USHS configuration:

a. Number of USHS systems _____ (57)

b. Where located _____

c. Size of CPU/system _____ (58)

d. Disk storage size/system _____ (59)

e. Terminals/systems - No. CRTs _____ (60)

- No of TTYs _____ (61)

- Other _____ _____ (62)

f. Line speeds and protocol _____ _____ (63)

g. Software used (type): DBMS _____ (64)

Applications products: _____

_____

Other: _____

h. What are the required data communications rates over vendor's network (kilobits per second)?

_____ (65)

_____

_____

11. How does/will USHS interface with:

a. In-House Computer Systems?

_____

_____

_____

b. Other organizations?

_____

_____

_____

12. Please comment on price/performance achieved:

_____

_____

_____

_____

13. a. What has been level of commitment for consulting, applications development, or conversion support from your vendor?

	Number		Weeks	
1. Number of people in sales	_____	(66)	_____	(69)
2. Number of people in sales support	_____	(67)	_____	(70)
3. Number of technical people	_____	(68)	_____	(71)

b. Does the vendor charge separately for:

1. Consulting	☐ Yes	☐ No	(72)
2. Application Development	☐ Yes	☐ No	(73)
3. Conversion Support	☐ Yes	☐ No	(74)

14. Please describe the buying process:

a. Who initially considered USHS?

1. EDP
2. User
3. Finance Department
4. Corporate Executive
5. Other _____ (specify)

(75)

b. How long before the actual purchase was:

- The concept raised _____ Months (76)
- Evaluation started _____ Months (77)
- Recommendations to purchase made _____ Months (78)

c. Who was involved in evaluation, purchase decision; and who gave final approval?

	Evaluation/ Purchase	Final Approval	
EDP Department	1	2	(79,80)
End User	3	4	(81,82)
Financial Department	5	6	(83,84)
Corporate Executive	7	8	(85,86)

d. Who actually operates the system? _____ (87)

15. Is the amount of USHS usage recorded for billing purposes? 1 Yes 2 No (88)

16. Please rate the following vendors as sources of computers for USHS. Use a 1-5 scale (5 = most desirable, 1 = least desirable).

	Rating	Vendor/Vendor Type	Preferred Vendor
(89)		IBM	Not Applicable
(90)		IBM PCM	
(91)		Other Mainframe Vendor - Burroughs, Univac, Honeywell, CDC	
(92)		Minicomputer - DEC, H-P, Prime	
(93)		Semiconductor/Minicomputer - TI, National Semiconductor	
(94)		Other: (specify)	

17. Please rate the importance of the following as reasons for buying USHS. Use a 1-5 scale (5 = very important, 1 = not important).

(95) _____ Lack of internal capacity to develop applications

(96) _____ Lack of internal capacity to operate applications

(97) _____ Inability to provide equivalent service internally

(98) _____ Cost effectiveness of USHS

(99) _____ Ability to decentralize yet retain control

(100) _____ Proven timesharing/problem solving software

(101) _____ Communications/network management support

(102) _____ Proprietary software

(103) _____ Other _____
(specify)

18. Please rate the following features of USHS. Use a 1-5 scale (5 = very important, 1 = not important).

(104) _____ Ability to interface with in-house system through the network

(105) _____ Ability to do application development at user site

(106) _____ Ability for user to purchase and add packaged software to USHS from third parties

(107) _____ Ability to interface with other vendors from the terminal

(108) _____ Ability to consolidate outside "timesharing"

(109) _____ Network capability to support multiple remote points

(110) _____ Ability to accurately project costs and budget accordingly

(111) _____ Reduction in costs of existing processing

19. a. What do you consider the affect of the IBM 4300/8100 announcement had on your decision?

_____

_____

_____

_____

b. Would your decision have been different if IBM had announced earlier?

1 Yes
2 No

(112)

Comments: _____

_____

_____

_____

END USERS (TRUST DEPARTMENT)

1. What are the current methods used for your trust operations data processing?

In-house EDP mainframe

_____ Mainframe vendor
(name)

_____ Software package

In-house minicomputer in trust department

_____ Minicomputer vendor
(name)

_____ Software package

Remote computer services vendor

_____ Vendor

2. Please identify management responsibilities in the procurement process. (circle all that apply)

Function	User Management		EDP Management		Financial Management		Top Management		
	Now	1985	Now	1985	Now	1985	Now	1985	
Identify Need	1	5	2	6	3	7	4	8	(8 9)
Establish Justification	1	5	2	6	3	7	4	8	(10,11)
Selects Vendor	1	5	2	6	3	7	4	8	(12,13)
Approves Vendor	1	5	2	6	3	7	4	8	(14,15)
Approves Procurement	1	5	2	6	3	7	4	8	(16,17)

3. Do you believe the role of the end user in trust computer/service procurement will change in the future?

1 Yes
2 No

(18)

Comments: _____

_____

_____

_____

4. How are vendors selected for for various EDP products/services that you purchase?

1. Formal Bids
2. Sales Presentations
3. Referrals
4. Other _____ (specify)

(19)

5. At what annual expenditure level can you as the end user select your own service or equipment?

1. Less than $1,000
2. $1,000 - $10,000
3. $10,000 - $25,000
4. $25,000 - $100,000
5. $100,000 - $500,000
6. $500,000 - $1,000,000
7. More Than $1 Million
8. Not At All

(20)

6. Who has the final decision?

_____ (21)

7. a. What are your current/planned expenditures for personal trust computer services in $/month?

$ _____ Now (22)

$ _____ 1980 (23)

b. What is the furtherest year you formally project planned expenditures for RCS?

_____ Years (24)

8. a. What are the major trust applications you are now using EDP for?

- ☐ Personal Trust
- ☐ Corporate Trust
- ☐ Participant Accounting
- ☐ Investment
- ☐ Security Movement and Control
- ☐ Employee Benefit Trust and Master Trust
- ☐ Cost Accounting
- ☐ General Timesharing
- ☐ Other _____

b. Which of these applications are separable from the EDP department were you to do your own development?

_____

_____

_____

9. a. Are there other processing services that would not be supplied by the EDP department?

1 Yes
2 No (25)

b. If yes, what are they?

_____

_____

_____

_____

c. If yes, are these services related to access to an external data base?

1 Yes
2 No (26)

Comments: _____

_____

_____

_____

10. Do you want to/or now do some of your own programming?

1 Yes
2 No (27)

Comments: _____

_____

_____

_____

11. How important to you will be the availability of a network with the future purchase of a computer?

1981	1.	High	2.	Medium	3.	Low (28)
1985	1.	High	2.	Medium	3.	Low (29)

Comments: _____

_____

_____

USER SITE HARDWARE SERVICES (USHS) - Provision at a user's site of a computer programmable terminal as part of a network-based service.

12. Would you consider using USHS to provide you with applications development or operation?

1 Yes
2 No

(30)

13. What trust services vendor would you consider using?

	(31) Consider	(32) Previous Customer
ADP	1	2
Shear Development	3	4
SEI	5	6
Comshare	7	8
Bradford	9	10
Other _____	11	12

_____
(specify)

14. Please describe trust applications that you would consider operating on a USHS:

a. Personal Trust

b. Corporate Trust

c. Participant Accounting

d. Investment

e. Security Movement and Control

f. Employee Benefit Trust and Master Trust

g. Cost Accounting

h. General Timesharing

i. Other _____

15. Would USHS interface with:

a. In-House Computer Systems?

1 Yes
2 No (33)
3 Don't Know

Comments: _____

_____

_____

_____

b. Other Bank Departments?

1 Yes
2 No (34)
3 Don't Know

Comments: _____

_____

_____

_____

c. Other Services Vendors?

1 Yes
2 No (35)
3 Don't Know

Comments: _____

_____

_____

_____

d. Other financial institutions (banks, custodians, depositors)

1 Yes
2 No (36)
3 Don't Know

Comments: _____

_____

_____

_____

16. What are your concerns, if any, about the manufacturer of the computer used as USHS?

    1. None

    2. Must Be IBM (37)

    3. Other _____ (specify)

17. Please rate the following vendors as sources of computers for USHS. Use a 1-5 scale (5 = most desirable, 1 = least desirable).

	Rating	Vendor/Vendor Type	Preferred Vendor
(38)		IBM	Not Applicable
(39)		IBM PCM	
(40)		Other Mainframe Vendor - Burroughs, Univac, Honeywell, CDC	
(41)		Minicomputer - DEC, H-P, Prime	
(42)		Semiconductor/Minicomputer - TI, National Semiconductor	
(43)		Other: (specify)	

18. Please rate the importance of the following as reasons for buying USHS. Use a 1-5 scale (5 = very important, 1 = not important)

(44) _____ Lack of internal capacity to develop applications

(45) _____ Lack of internal capacity to operate applications

(46) _____ Inability to provide equivalent service internally

(47) _____ Cost effectiveness of USHS

(48) _____ Ability to decentralize yet retain control

(49) _____ Proven timesharing/problem solving software

(50) _____ Communications/network management support

(51) _____ Proprietary software

(52) _____ Other _____
(specify)

19. Please rate the following features of USHS. Use a 1-5 scale (5 = very important, 1 = not important)

(53) _____ Ability to interface with in-house system through the network

(54) _____ Ability to do application development at user site

(55) _____ Ability for user to purchase and add packaged software to USHS from third parties

(56) _____ Ability to interface with other vendors from the terminal

(57) _____ Ability to consolidate outside "timesharing"

(58) _____ Network capability to support multiple remote points

(59) _____ Ability to accurately project costs and budget accordingly

(60) _____ Reduction in costs of existing processing

20. a. How important is the ability to update the trust master file on-line and in real time to trust operations?

1 Very Important
2 Important (61)
3 Not Important

b. Why? _____

_____

_____

_____

21. What characteristics of a USHS are:

a. Worth paying a premium for _____

_____

_____

b. Mandatory _____

_____

_____

c. Nice advantages _____

_____

_____

d. Problems _____

_____

_____

22. Given that the trust department has a USHS with networking capability, how much expenditure on other forms of trust related data processing would you convert to USHS in $/month?

(62) $ _____ In-House

(63) $ _____ External RCS (Timesharing)

From whom? _____ (64)

(65) $ _____ Other

23. a. Would you prefer that USHS costs be bundled or unbundled?

1 Bundled
2 Unbundled (66)

b. Why? _____

_____

_____

_____

c. For USHS equipment would you prefer:

1 Purchase
2 Lease
3 Rental (67)

Why? _____

_____

_____

_____

d. For USHS software would you prefer:

1 License
2 Purchase (68)

Why? _____

_____

_____

_____

24 a. Within what timeframe might you make a commitment to/or decision about USHS? (circle one)

1 Less Than 1 Year
2 One Year
3 2-3 Years
4 3-5 Years (69)

b. At what expenditure level? _____ $/Month (70)

25. Do you have any additional comments on how your computer/communication requirements may be met in the 1980s?

USERS CONSIDERED BUT REJECTED USHS
(For "Users Rejecting USHS" adjust questions accordingly)

1. What role do you as an end user play in computer procurement?

_____

_____

_____

2. How does your role fit with the role of:

a. EDP Department _____

_____

_____

b. Financial Department _____

_____

---

3. At what annual expenditure level can you as the end user select your own service or equipment?

1. Less than $1,000
2. $1,000 - $10,000
3. $10,000 - $25,000
4. $25,000 - $100,000
5. $100,000 - $500,000
6. $500,000 - $1,000,000
7. More than $1 Million
8. Not At All

(8)

4. Please identify management responsibilities in the procurement process. (circle all that apply)

Function	User Management		EDP Management		Financial Management		Top Management		
	Now	1985	Now	1985	Now	1985	Now	1985	
Identify Need	1	5	2	6	3	7	4	8	(9,10)
Establish Justification	1	5	2	6	3	7	4	8	(11,12)
Selects Vendor	1	5	2	6	3	7	4	8	(13,14)
Approves Vendor	1	5	2	6	3	7	4	8	(15,16)
Approves Procurement	1	5	2	6	3	7	4	8	(17,18)

5. How are vendors selected for the various EDP products/services that you purchase?

1. Formal Bids
2. Sales Presentations
3. Referrals
4. Other _____ (specify)

(19)

6. Who has the final decision?

_____ (20)

7. a. What are your current/planned expenditures for RCS in $/month?

$ _____ Now (21)

$ _____ 1980 (22)

b. How far ahead do you formally project planned expenditures for RCS?

_____ Years (23)

8. Please list the major RCS applictions you are now using, and indicate which of these are separable from the EDP department were you to do your own development:

Application	Separate from EDP

9. a. Are there other processing services that you need that are not supplied by the EDP department?

1 Yes
2 No (24)

b. If yes, what are they? _____

_____

_____

_____

c. If yes, are these services related to access to an external data base?

1 Yes
2 No (25)

Comments: _____

_____

_____

_____

10. Do you want to/or now do some of your own programming?

1 Yes
2 No (26)

Comments: _____

_____

_____

_____

11. How important to you will be the availability of a network with the future purchase of a computer?

1981 1. High 2. Medium 3. Low (27)

1985 1. High 2. Medium 3. Low (28)

Comments: _____

_____

_____

USER SITE HARDWARE SERVICES (USHS) - Provision at a user's site of a computer programmable terminal as part of a network-based service.

12. Would you consider using USHS to provide you with applications development and operation?

1 Yes
2 No

(29)

13. What was the basic reason for rejecting USHS?

1. Cost
2. Internal organizational consideration
3. USHS too new and unproven
4. Problems concerned with changeover
5. Other _____ (specify)

(30)

14. What current USHS vendor did you consider? (circle all that apply)

	(31) Consider	(32) Previously A Customer
ADP	a	b
NCSS	c	d
GEIS	e	f
Informatics	g	h
Other _____ (specify)	i	j

15. What applications did you consider operating on a USHS?

a.

b.

c.

d.

e.

f.

g.

h.

16. What were your concerns, if any, about the manufacturer of the USHS computer? (circle one)

1. None

2. Must Be IBM

3. Other _____
(specify)

17. Please rate the following vendors as sources of computers for USHS. Use a 1-5 scale (5 = most desirable, 1 = least desirable).

	Rating	Vendor/Vendor Type	Preferred Vendor
(34)		IBM	Not Applicable
(35)		IBM PCM	
(36)		Other Mainframe Vendor - Burroughs, Univac, Honeywell, CDC	
(37)		Minicomputer - DEC, H-P, Prime	
(38)		Semiconductor/Minicomputer - TI, National Semiconductor	
(39)		Other: (specify)	

18. Please rate the importance of the following as reasons for buying USHS. Use a 1-5 scale (5 = very important, 1 = not important)

(40) _____ Lack of internal capacity to develop applications

(41) _____ Lack of internal capacity to operate applications

(42) _____ Inability to provide equivalent service internally

(43) _____ Cost effectiveness of USHS

(44) _____ Ability to decentralize yet retain control

(45) _____ Proven timesharing/problem solving software

(46) _____ Communications/network management support

(47) _____ Proprietary software

(48) _____ Other _____
(specify)

19. Please rate the following features of USHS. Use a 1-5 scale (5 = very important, 1 = not important).

(49) _____ Ability to interface with in-house system through the network

(50) _____ Ability to do application development at user site

(51) _____ Ability for user to purchase and add packaged software to USHS from third parties

(52) _____ Ability to interface with other vendors from the terminal

(53) _____ Ability to consolidate outside "timesharing"

(54) _____ Network capability to support multiple remote points

(55) _____ Ability to accurately project costs and budget accordingly

(56) _____ Reduction in costs of existing processing

20. What characteristics of a USHS are:

a. Worth paying a premium for _____

_____

_____

b. Mandatory _____

_____

_____

c. Nice advantages _____

_____

_____

d. Problems _____

_____

_____

21. If reconsideration of USHS is planned at a future time, when might you make a commitment/ or decision about RCS/OSH?

1 Less Than 1 Year
2 One Year
3 2-3 Years
4 3-5 Years

(57)

22. Do you have any additional comments on how your computer/communications requirements may be met in the 1980s?

_____

_____

_____

_____

_____

_____

_____

_____

USHS - FINANCIAL/EXECUTIVE OFFICER

1. a. What role does the financial/executive department play in computer procurement?

b. What are the corporate rules about computer and computer service procurement?

2. How is computer evaluation carried out? Who participates in the evaluation?

3. Who has the final decision?

4. Please indicate the maximum ($) approval level for each organizational level. (circle one each)

System	Approval Level				
	End User Management	EDP Management	Financial Management	Corporate Management	
a. Major computer system costing more than $1 million	1	2	3	4	(8)
b. Medium-sized system in $100,000 - $1 million	1	2	3	4	(9)
c. Small computer system less than $100,000	1	2	3	4	(10)
d. $15,000 per month computer service which has computer at your site	1	2	3	4	(11)
e. $5,000 per month computer service with terminal at your site	1	2	3	4	(12)
f. $5,000/standalone computer system	1	2	3	4	(13)

5. Is the approval level higher when systems are being procured for multiple sites?

1 Yes
2 No

(14)

Comments: _____

_____

_____

_____

6. Who do you perceive to be the major user of RCS in your company?

_____

_____

_____

7. What impacts are there if these systems are to be in end user departments and not under EDP department control?

_____

_____

_____

_____

8. At what size level can an end user buy his own computer:

1. Less than $5,000
2. $5,000 - $10,000
3. $10,000 - $25,000
4. $25,000 - $100,000 (15)
5. $100,000 - $500,000
6. $500,000 - $1,000,000
7. More than $1 million
8. Not at all

INP

9. How will the purchasing of computer power change in the 1980s?

_____

_____

_____

_____

_____

_____

10. Will you decentralize or centralize the:

	Centralize	Decentralize
a. Purchasing Decision	_____	_____
b. Computer Operations	_____	_____
c. Applications Selection	_____	_____
d. On-Going Programming	_____	_____

11. a. Please identify management responsibilities in the procurement process. (circle all that apply)

Function	User Management		EDP Management		Financial Management		Top Management		
	Now	1985	Now	1985	Now	1985	Now	1985	
Identify Need	1	5	2	6	3	7	4	8	(16,17)
Establish Justification	1	5	2	6	3	7	4	8	(18,19)
Selects Vendor	1	5	2	6	3	7	4	8	(20,21)
Approves Vendor	1	5	2	6	3	7	4	8	(22,23)
Approves Procurement	1	5	2	6	3	7	4	8	(24,25)

11. b. At what level of annual expenditures for RCS would you consider installation of an in-house computer to replace the RCS service in whole or in part?

1. $50,000 - $100,000 per year
2. $100,000 - $250,000 per year
3. $250,000 - $500,000 per year (26)
4. $500,000 - $750,000 per year
5. $750,000 - $1,000,000 per year
6. More than $1 million per year

c. Why? _____

_____

_____

_____

12. Rate the attractiveness of having the in-house computer provided as a part of the RCS: (circle one)

1 Very Attractive
2 Somewhat Attractive
3 Not Attractive

Why? _____

_____

_____

_____

13. a. Is cost the dominant factor in deciding to place a computer on-site?

1 Yes
2 No (28)

b. If no, what is?

_____

_____

_____

14. a. At what level do you consider bringing it in-house?

b. Why?

c. What if it means buying another processor?

15. If cost is not the main concern, what is?

16. a. What differences are there between buying computer services and buying computers to set up your own services?

b. What if the computer is part of the external RCS service offering?

17. What is your personal attitude to buying computer services right now? How will this change in the 1980s?

Now (29)		1980 (30)	
1.	Opposed	1.	Opposed
2.	Neutral	2.	Neutral
3.	In Favor	3.	In Favor

Comments: _____

_____

_____

_____

_____

_____

18. What would be your attitude towards buying service instead of hardware from major vendors like:

	AT&T	CDC, Burroughs, Honeywell, Univac	IBM
Opposed			
Neutral			
In Favor			
Highly in Favor			

19. What impacts will the growing communications requirement have on your computer purchasing (e.g., distributed data processing, computer/communications networks)?

20. Do you have any additional comments on how your computer/communications requirements may be met in the 1980s?